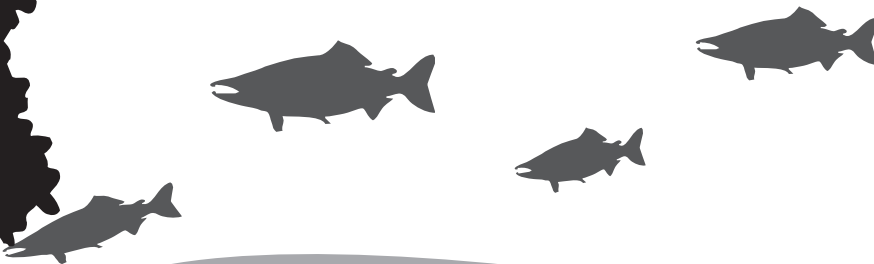
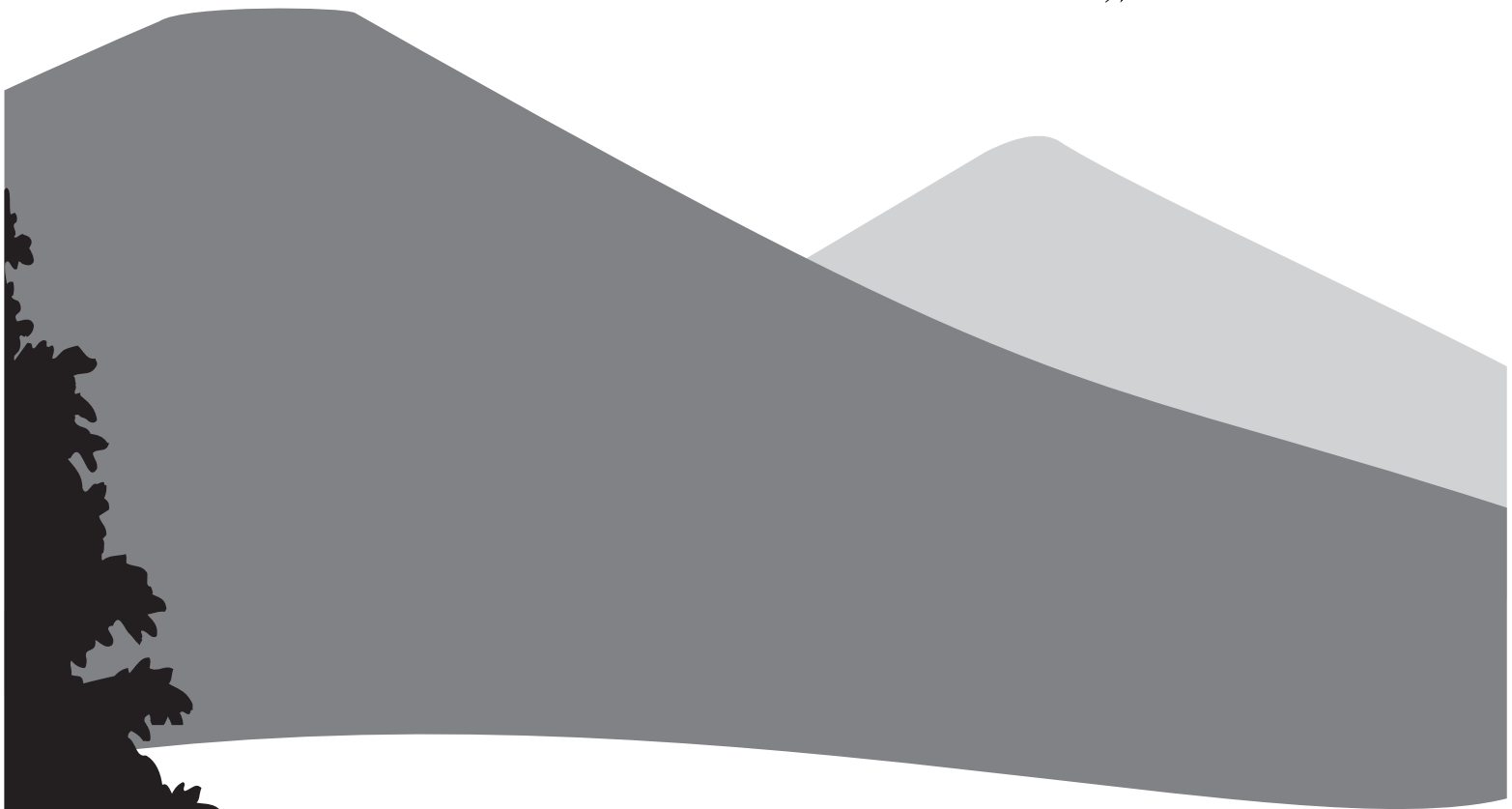
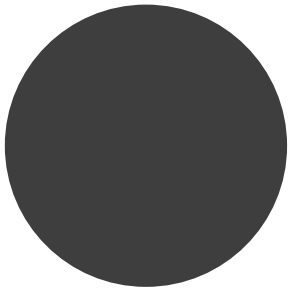


ADULT LITERACY FUNDAMENTAL MATHEMATICS

Book Two



ABE
ADULT BASIC
EDUCATION

Adult Literacy Fundamental Mathematics

Book 2

Prepared by Wendy Tagami

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To the Learner:

Welcome to Fundamental Mathematics Book Five.

Adult Math Learners

You have the skills you need to be a strong student in this class.

Adult math learners have many skills. They have a lot of life experience. They also use math in their everyday lives. This means that adult math learners may already know some of what is being taught in this book. Use what you already know with confidence!

Grades Record

You have also been given a sheet to write down your grades. After each test, you can write in the mark. This way you can keep track of your grades as you go through the course. This is a good idea to use in all your courses. You can find this grade sheet at the end of the book.

How to Use this Book

This textbook has:

- ✓ A **Table of Contents** listing the units, the major topics and subtopics.
- ✓ A **Glossary** giving definitions for mathematical vocabulary used in the course.
- ✓ A **grades record** to keep track of your marks.

The textbook has many exercises; some are quite short, but others have a great number of questions. **You do not have to do every single question!**

- Do as many questions as **you** feel are necessary for you to be confident in your skill.
- It is best to do **all** the word problems.
- If you leave out some questions, try doing every second or every third question. Always do some questions from the end of each exercise because the questions usually get harder at the end. You might use the skipped questions for review before a test.
- If you are working on a difficult skill or concept, do half the exercise one day and finish the exercise the next day. That is a much better way to learn.

Self-tests at the end of most topics have an **Aim** at the top. If you do not meet the aim, talk to your instructor, find what is causing the trouble, and do some more review before you go on.

A **Review and Extra Practice** section is at the end of each unit. If there is an area of the unit that you need extra practice in, you can use this. Or, if you want, you can use the section for more review.

A **Practice Test** is available for each unit. You may:

- Write the practice test after you have studied the unit as a practice for the end-of-chapter test, OR
- You might want to write it before you start the unit to find what you already know and which areas you need to work on.

Unit tests are written after each unit. Again, you must reach the **Aim** before you begin the next unit. If you do not reach the aim, the instructor will assist you in finding and practising the difficult areas. When you are ready, you can write a B test to show that you have mastered the skills.

A **Final Test** is to be written when you have finished the book. This final test will assess your skills from the whole book. You have mastered the skills in each unit and then kept using many of them throughout the course. The test reviews all those skills.

Grades Record Book 2

Unit	Practice Test	Date of Test A	Test A	Date of Test B	Test B
<i>Example</i>	√	<i>Sept. 4, 2011</i>	$\frac{25}{33}$	<i>Sept. 7, 2011</i>	$\frac{28}{33}$
1					
2					
3					
4					
Final Test					

Unit 1

Number Sense

Topic A: Emotions and Learning

Emotions, or what we feel about something, play a big part in how we learn. If we are calm, we learn well. If we are afraid or stressed, we do not learn as well.

Math anxiety or the fear of math is a learned habit. If it is learned, it can be unlearned. Most math anxiety comes from bad memories while learning math.

Everyone can learn math. There is no special talent for math. There are some people who are better at math than others, but even these people had to **learn** to be good at math.

People who are good at math have learned some good skills to help them learn math. One good skill is to know your textbook.

Know Your Textbook

Look at the **Table of Contents** in the front of your textbook. It tells you what you will be learning. You can see some things that you already know, some things that you may have forgotten and some things that are new to you.

Flip the pages. You can see that the textbook is split into units. Each unit is something to learn.

Each unit has exercises to do. Notice the **answers** are at the end of the exercise. You can check your answers as soon as you are done. You can also check your answer before moving on if are not sure if you are doing the question right.

At the end of each unit is a **self-test**. It is a chance for you to see how well you have learned the skills in the unit. If you do well, you can move on. If you don't do well, you can go back and practice those skills.

Knowing your textbook gives you a good skill. If you get frustrated, you can use the **Table of Contents** to go back and find some help.

How to Deal with Math Anxiety

Anyone can feel anxiety that will slow down learning. The key to learning is to be the “boss” of your anxiety.

One way to be the “boss” is to relax. Try this breathing exercise.

Start by breathing in slowly to the count of four. It may help to close your eyes and count. Now hold your breath for four counts and then let your breath out slowly to the count of four. The counting is silent and should follow this pattern: “breathe in, two, three four; hold, two, three, four; breathe out, two, three, four; wait, two, three four.” With practice, the number of counts can be increased. This is an easy and good way to relax.

Now try this exercise quietly and repeat it five times slowly.

Each time you feel anxious about learning, use the breathing exercise to help calm yourself. Ask yourself if what you tried worked. Do you feel calmer?

Remember learning to deal with your math anxiety may take some time. It took you a long time to learn “math anxiety”, so it will take some time to overcome it.

Topic B: Place Value

Each **place** in a number has a **value**.

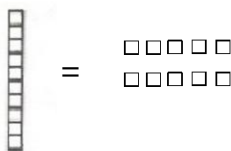
- The **ones place** tells how many ones there are.

3 means 3 ones □□□

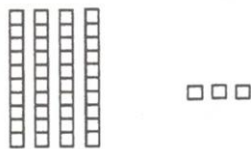
9 is the largest amount that we can express (write or say) with one digit.

- The **tens place** shows how many tens there are. The ones place must have a digit in it before there can be a digit in the tens place.

Every ten is **ten ones**.



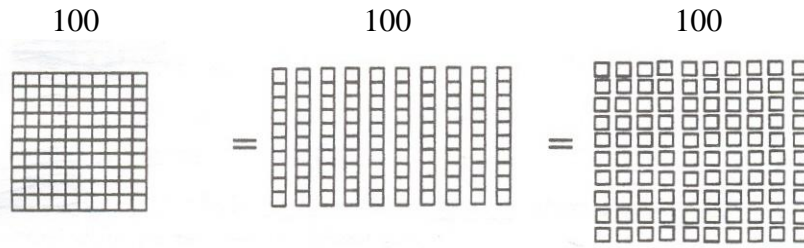
43 means 4 tens and 3 ones



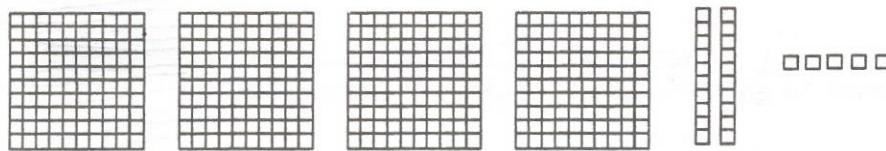
99 means 9 tens and 9 ones. 99 is the largest amount that we can express (write or say) using only two digits.

The place to the left of the tens place is the **hundreds place**. It shows how many hundreds there are. A number written using three whole digits has a hundreds place, a tens place, and a ones place.

Every hundred is **ten tens** – every hundred is the same as one hundred ones.

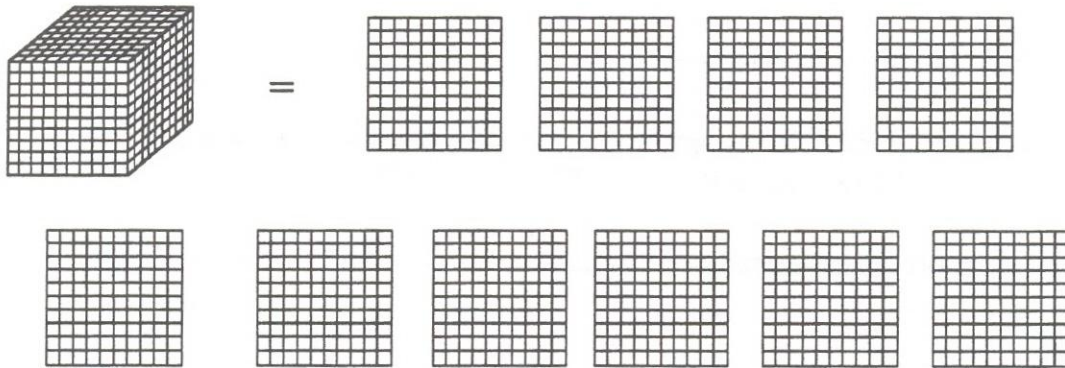


425 means 4 hundreds, 2 tens, and 5 ones.

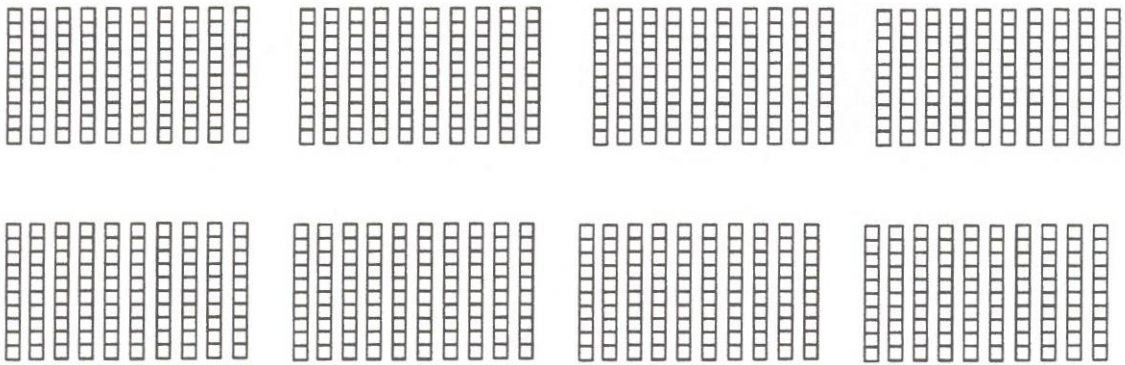
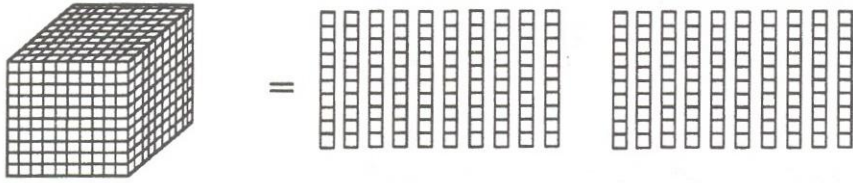


The place to the left of the hundreds place is the **thousands** place.

One thousand is the same as ten hundreds.



One thousand is the same as one hundred tens.



One thousand is the same as one thousand ones. (You will have to imagine the picture of the one thousand ones!)

When we write numerals, a little space is left between the thousands place and the hundreds place. The space makes it easier to read large numerals.

4 392 8 253 23 693

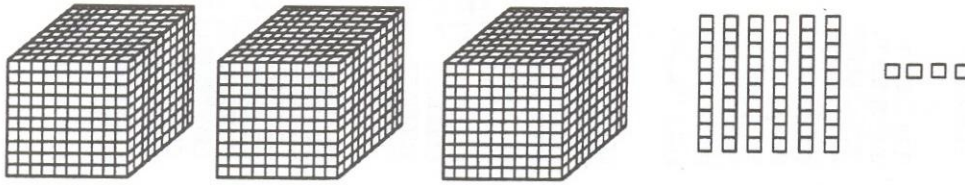
Large numerals used to be written with a comma (,) instead of a space and you may still see numerals like this: 4,392 8,253 23,693

Learn to use the space instead of a comma because that is the preferred style.

2 212 means 2 thousands, 2 hundreds, 1 ten, and 2 ones

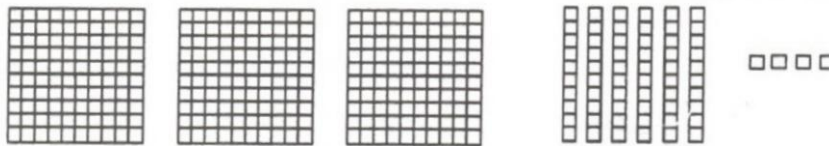


3 064 means 3 thousands, 0 hundreds, 6 tens, and 4 ones



What happens if the 0 is not written to hold the hundreds place?

The numerals would then be 364 which stands for the number 3 hundreds, 6 tens, and 4 ones.



364 is **not** the same as 3 064.

Exercise One

Fill in the blanks to make each sentence true. Draw a sketch if you wish. Check your work using the answer key at the end of the exercise.

- a) $8\ 261 =$ _____ thousands _____ hundreds _____ tens _____ ones
- b) $4\ 005 =$ _____ thousands _____ hundreds _____ tens _____ ones
- c) $2\ 931 =$ _____ thousands _____ hundreds _____ tens _____ ones
- d) $1\ 034 =$ _____ thousands _____ hundreds _____ tens _____ ones
- e) $2\ 608 =$ _____ thousands _____ hundreds _____ tens _____ ones
- f) $7\ 543 =$ _____ thousands _____ hundreds _____ tens _____ ones
- g) $2\ 900 =$ _____ thousands _____ hundreds _____ tens _____ ones

Answers to Exercise One

- a) 8 thousands, 2 hundreds, 6 tens, 1 ones b) 4 thousands, 0 hundreds, 0 tens, 5 ones
 c) 2 thousands, 9 hundreds, 3 tens, 1 one d) 1 thousand, 0 hundreds, 3 tens, 4 ones
 e) 2 thousands, 6 hundreds, 0 tens, 8 ones f) 7 thousands, 5 hundreds, 4 tens, 3 ones
 g) 2 thousands, 9 hundreds, 0 tens 0 ones

The place value to the left of thousands is **ten thousands**. As you can tell by the name, one ten thousand is ten thousands. You are not going to get a sketch of these large place values because the page isn't big enough!

43 692 = 4 ten thousands, 3 thousands, 6 hundreds, 9 tens, and 2 ones

43 692 can also be thought of as 43 thousands, 6 hundreds, 9 tens, and 2 ones.

Exercise Two

Fill in the blanks. Check your work using the answer key at the end of the exercise.

a)

	ten thousands	thousands	hundreds	tens	ones
80 300	<i>8</i>	<i>0</i>	<i>3</i>	<i>0</i>	<i>0</i>
OR		<i>80</i>	<i>3</i>	<i>0</i>	<i>0</i>

b)

	ten thousands	thousands	hundreds	tens	ones
36 981					
OR					

c)

	ten thousands	thousands	hundreds	tens	ones
31 205					
OR					

d)

	ten thousands	thousands	hundreds	tens	ones
99 999					
OR					

e)

	ten thousands	thousands	hundreds	tens	ones
15 002					
OR					

f)

	ten thousands	thousands	hundreds	tens	ones
75 125					
OR					

Answers to Exercise Two

b)

	ten thousands	thousands	hundreds	tens	ones
36 981	3	6	9	8	1
OR		36	9	8	1

c)

	ten thousands	thousands	hundreds	tens	ones
31 205	3	1	2	0	5
OR		31	2	0	5

d)

	ten thousands	thousands	hundreds	tens	ones
99 999	9	9	9	9	9
OR		99	9	9	9

e)

	ten thousands	thousands	hundreds	tens	ones
15 002	1	5	0	0	2
OR		15	0	2	2

f)

	ten thousands	thousands	hundreds	tens	ones
75 125	7	5	1	2	5
OR		75	1	2	5

Have you heard the expression, “Oh, he has a 6 figure salary!” That means he earns at least one hundred thousand dollars which takes six digits to write! The place value to the left of ten thousands is **hundred thousands**. There is definitely not room on the page for a picture of this place value! Ten ten thousands makes one hundred thousand.

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
432 467	4	3	2	4	6	7

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
803 214	8	0	3	2	1	4

And if we look one more place to the left, the place value is **millions**. One million is 1 with six zeros after it. 1 000 000

A space is left between the millions place and the hundred thousands place.

A space is left between the thousands place and the hundreds place.

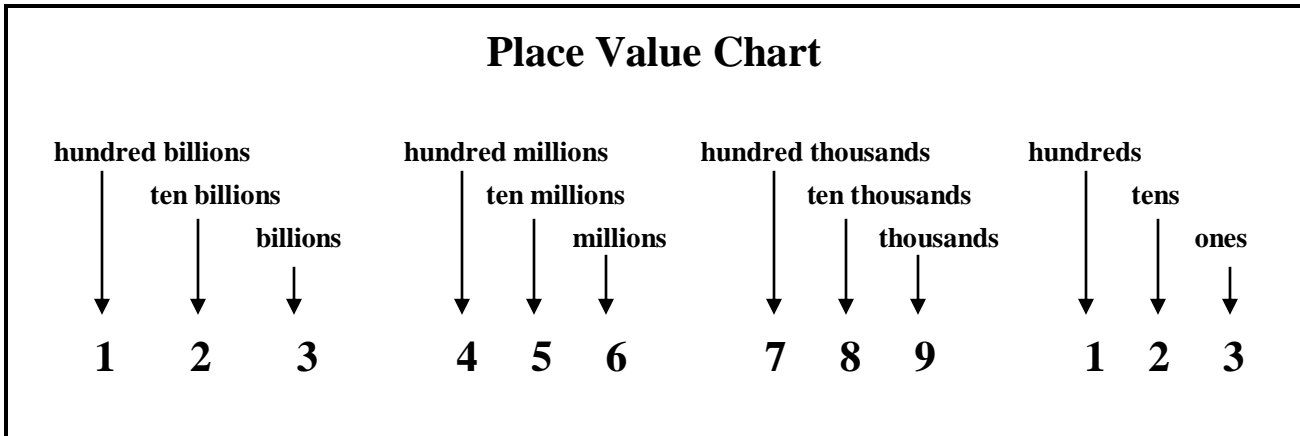
2 368 100

3 150 213

14 263 942

5 521 671

This **place value chart** may help you to remember the place values.



Notice the groups of three digits. Look at the pattern for the three places which is repeated in each **place value group** – the pattern is hundreds, tens, ones.

Our number system is called a **decimal system** because it is based on the number **ten**. *Deci* is a Latin word that means *ten*.

Whole numbers can have a decimal point (a dot) written at the end. Starting with ones, the place values are each **ten times greater**.

- ones place = one
- tens place = 10 ones
- hundreds place = 10 tens
- thousands place = 10 hundreds
- ten thousands place = 10 thousands
- hundred thousands place = 10 ten thousands
- millions place = 10 hundred thousands
- ten millions place = 10 millions
- hundred millions place = 10 ten millions

... and so on.

Our number system is very tidy. When you learn to use the metric measurement system you will see the metric system is based on ten just like the number system.

Exercise Three

Write the place value name for each underlined digit. Check your work using the answer key at the end of the exercise.

- a) 23 206 thousands b) 2 468 tens
- c) 622 _____ d) 92 002 _____
- e) 92 002 _____ f) 14 262 _____
- g) 48 076 _____ h) 5 555 _____
- i) 12 245 _____ j) 92 002 _____
- k) 12 026 _____ l) 6 348 _____

Answers to Exercise Three

- | | | | |
|--------------|---------|------------------|------------------|
| a) thousands | b) tens | c) hundreds | d) ten thousands |
| e) hundreds | f) tens | g) ten thousands | h) hundreds |
| i) ones | j) tens | k) thousands | l) thousands |

Exercise Four

Underline the digit for the place value named. Check your work using the answer key at the end of the exercise.

- a) thousands 416 245 b) tens 363 482
- c) ten thousands 36 482 d) hundreds 1 456
- e) hundred thousands 206 415 f) thousands 63 421
- g) hundreds 74 322 h) hundred thousands 685 413
- i) thousands 221 300 j) ten thousands 10 000
- k) ones 16 394 l) tens 684

Answers to Exercise Four

a) 416 245

b) 363 482

c) 36 482

d) 1 456

e) 206 415

f) 63 421

g) 74 322

h) 685 413

i) 221 300

j) 10 000

k) 16 394

l) 684

Reading and Writing Numerals

You know that the **digits** are 0 1 2 3 4 5 6 7 8 9 and that digits are arranged in different places so we can count larger amounts than our ten fingers!

When we use **digits** we call what we write the **numeral**.

328 is a numeral

46 is a numeral

3 is a numeral

We use numerals to represent **numbers**.

The numerals from 1 to 12 have special words. These are

0	zero	7	seven
1	one	8	eight
2	two	9	nine
3	three	10	ten
4	four	11	eleven
5	five	12	twelve
6	six		

The numerals from 13 to 19 are

13	thirteen
14	fourteen
15	fifteen
16	sixteen
17	seventeen
18	eighteen
19	nineteen

The word names for the numbers 20 to 90 are

- 20 twenty
- 30 thirty
- 40 forty
- 50 fifty
- 60 sixty
- 70 seventy
- 80 eighty
- 90 ninety

The names for the numbers **between** groups of tens also follow a pattern. The first number tells us how many tens. The second number tells us how many ones.

	Tens	Ones		Tens	Ones		Tens	Ones
20	twenty		30	thirty		40	forty	
21	twenty- one		31	thirty- one		41	forty- one	
22	twenty- two		32	thirty- two		42	forty- two	
23	twenty- three		33	thirty- three		43	forty- three	
24	twenty- four		34	thirty- four		44	forty- four	
25	twenty- five		35	thirty- five		45	forty- five	
26	twenty- six		36	thirty- six		46	forty- six	
27	twenty- seven		37	thirty- seven		47	forty- seven	
28	twenty- eight		38	thirty- eight		48	forty- eight	
29	twenty- nine		39	thirty- nine		49	forty- nine	

The written names for numbers that have tens and ones are written with a hyphen (-) between them. This pattern with the hyphen continues up to ninety-nine (99).

When we write hundreds in words, we need two words. The first word tells us **how many** hundreds. The second word tells us we are counting hundreds.

200 **two hundred**

You now know how to write numbers in words up to 999.

367 is made of	3 hundreds	6 tens	7 ones
Each is written:	three hundred	sixty	seven
Put the parts together:	three hundred sixty-seven		

Remember:

- hyphen (-) between the tens and units
- no hyphen anywhere else
- no “s” on the hundred
- no ‘**and**’ between the hundreds place and the tens place

Here is another example. Watch out for the empty space!

504 is made of	5 hundreds	0 tens	4 ones
Each is written:	five hundred		four
Put the parts together:	five hundred four		

Here is another example. Watch out for the empty space!

890 is made of	8 hundreds	9 tens	0 ones
Each is written:	eight hundred	ninety	
Put the parts together:	eight hundred ninety		

Here is another example. Watch out for the empty spaces!

100 is made of	1 hundreds	0 tens	0 ones
Each is written:	one hundred		
Put the parts together:	one hundred		

Remember: empty spaces are not written in words.

Large numerals are read in the place value groups of three that you noticed in the place value chart. You have been practicing reading numerals with three digits or less. Now practice reading the thousands group.

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
423 796 is made of	4	2	3	7	9	6
Each is written	four hundred twenty-three thousand			seven hundred	ninety	six
Put the parts together	four hundred twenty-three thousand seven hundred ninety-six					

423 796 is four hundred twenty-three **thousand** seven hundred ninety-six

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
26 201 is made of		2	6	2	0	1
Each is written	twenty-six thousand			two hundred		one
Put the parts together	twenty-six thousand two hundred one					

26 201 is twenty-six **thousand** two hundred one

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
400 000 is made of	4	0	0	0	0	0
Each is written	four hundred thousand					
Put the parts together	four hundred thousand					

400 000 is four hundred **thousand**

Exercise Five

Write the word names for the numerals. Check your work using the answer key at the end of the exercise.

a)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
491 200 is made of						
Each is written						
Put the parts together						

b)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
19 631 is made of						
Each is written						
Put the parts together						

c)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
304 212 is made of						
Each is written						
Put the parts together						

d)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
3 426 is made of						
Each is written						
Put the parts together						

e)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
218 000 is made of						
Each is written						
Put the parts together						

f)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
623 009 is made of						
Each is written						
Put the parts together						

g) 365 456 _____

h) 299 899 _____

i) 456 876 _____

j) 923 471 _____

k) 53 679 _____

Answers to Exercise Five

a)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
491 200 is made of	4	9	1	2	0	0
Each is written	four hundred ninety-one thousand			two hundred		
Put the parts together	four hundred ninety-one thousand two hundred					

b)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
19 631 is made of		1	9	6	3	1
Each is written	nineteen thousand			six hundred	thirty	one
Put the parts together	nineteen thousand six hundred thirty-one					

c)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
304 212 is made of	3	0	4	2	1	2
Each is written	three hundred four thousand			two hundred	twelve	
Put the parts together	three hundred four thousand two hundred twelve					

d)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
3 426 is made of			3	4	2	6
Each is written	three thousand			four hundred	twenty	six
Put the parts together	three thousand four hundred twenty-six					

e)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
218 000 is made of	2	1	8	0	0	0
Each is written	two hundred eighteen thousand					
Put the parts together	two hundred eighteen thousand					

f)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
623 009 is made of	6	2	3	0	0	9
Each is written	six hundred twenty-three thousand					nine
Put the parts together	six hundred twenty-three thousand nine					

- g) three hundred sixty-five thousand four hundred fifty-six
- h) two hundred ninety-nine thousand eight hundred ninety-nine
- i) four hundred fifty-six thousand eight hundred seventy-six
- j) nine hundred twenty-three thousand four hundred seventy-one
- k) fifty-three thousand six hundred seventy-nine

Now, just for fun, take a look at these very large numerals. Say “million” for the group to the left of the thousands group.

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
2 643 182 is made of	2	6	4	3	1	8	2
Each is written	two million	six hundred forty-three thousand			one hundred	eighty	two
Put the parts together	two million six hundred forty-three thousand one hundred eighty-two						

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
6 510 231 is made of	6	5	1	0	2	3	1
Each is written	six million	five hundred ten thousand			two hundred	thirty	one
Put the parts together	six million five hundred ten thousand two hundred thirty-one						

Exercise Six

Write the word names for the numerals. Check your work using the answer key at the end of the exercise.

a)

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
2 851 234 is made of							
Each is written							
Put the parts together							

b)

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
3 186 662 is made of							
Each is written							
Put the parts together							

c)

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
8 283 450 is made of							
Each is written							
Put the parts together							

d)

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
2 345 409 is made of							
Each is written							
Put the parts together							

e) 9 276 403 _____

f) 3 916 875 _____

g) 4 873 519 _____

Answers to Exercise Six

a)

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
2 851 234 is made of	2	8	5	1	2	3	4
Each is written	two million	eight hundred fifty-one thousand			two hundred	thirty	four
Put the parts together	two million eight hundred fifty-one thousand two hundred thirty-four						

b)

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
3 186 662 is made of	3	1	8	6	6	6	2
Each is written	three million	one hundred eighty-six thousand			six hundred	sixty	two
Put the parts together	three million one hundred eighty-six thousand six hundred sixty-two						

c)

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
8 283 450 is made of	8	2	8	3	4	5	0
Each is written	eight million	two hundred eighty-three thousand			four hundred	fifty	
Put the parts together	eight million two hundred eighty-three thousand four hundred fifty						

d)

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
2 345 409 is made of	2	3	4	5	4	0	9
Each is written	two million	three hundred forty-five thousand			four hundred		nine
Put the parts together	two million three hundred forty-five thousand four hundred nine						

- e) nine million two hundred seventy-six thousand four hundred three
- f) three million nine hundred sixteen thousand eight hundred seventy-five
- g) four million eight hundred seventy-three thousand five hundred nineteen

Work on reading these numerals with someone else and then ask your instructor to listen as you read them.

241 962 107
 27 800
 164 231
 138 000
 912 050
 227 695

483 450
 2 345 409
 260 164 342
 410 623
 24 900
 105 576

Exercise Seven

Now practice writing numerals from number names. Check your work using the answer key at the end of the exercise.

a) Eight hundred twenty-three thousand nine hundred forty-one

	eight hundred twenty-three thousand			nine hundred forty-one		
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
	8	2	3	9	4	1
823 941						

b) Three million four hundred eighty-one thousand five hundred sixty-seven

three million	four hundred eighty-one thousand			five hundred sixty-seven		
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
3	4	8	1	5	6	7
3 481 567						

c) two hundred seventy-six thousand five hundred eight

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

d) One million six hundred fifty-eight thousand three hundred twenty-five

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

e) four million eight hundred sixteen thousand two hundred thirty-two

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

f) six hundred twenty thousand four hundred thirty-nine

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

g) twenty-five thousand five hundred seventy-four

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

h) nine million one hundred sixty-three thousand two hundred fifteen

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

i) eighty-six thousand, three hundred sixty-eight

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

j) seven million twenty-six thousand five hundred eighteen

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

k) six million two hundred nineteen thousand three hundred forty-five

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

l) two hundred seventy-nine thousand two hundred sixty-one

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

m) four million one hundred seventy thousand three hundred eight

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

n) nine million five hundred eighty-two thousand sixty-five

millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones

Answers to Exercise Seven

c) two hundred seventy-six thousand five hundred eight

	two hundred seventy-six thousand			five hundred eight		
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
	2	7	6	5	0	8
276 508						

d) One million six hundred fifty-eight thousand three hundred twenty-five

one million	six hundred fifty-eight thousand			three hundred twenty-five		
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
1	6	5	8	3	2	5
1 658 325						

e) four million eight hundred sixteen thousand two hundred thirty-two

four million	eight hundred sixteen thousand			two hundred thirty-two		
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
4	8	1	6	2	3	2
4 816 232						

f) six hundred twenty thousand four hundred thirty-nine

	six hundred twenty thousand			four hundred thirty-nine		
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
	6	2	0	4	3	9
620 439						

g) twenty-five thousand five hundred seventy-four

	twenty-five thousand			five hundred seventy-four		
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
		2	5	5	7	4
25 574						

h) nine million one hundred sixty-three thousand two hundred fifteen

nine million	one hundred sixty-three thousand			two hundred fifteen		
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
9	1	6	3	2	1	5
9 163 215						

i) eighty-six thousand, three hundred sixty-eight

	eighty-six thousand			three hundred sixty-eight		
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
		8	6	3	6	8
86 368						

j) seven million twenty-six thousand five hundred eighteen

seven million	twenty-six thousand			five hundred eighteen		
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
7	0	2	6	5	1	8
7 026 518						

k) six million two hundred nineteen thousand three hundred forty-five

six million	two hundred nineteen thousand			three hundred forty-five		
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
6	2	1	9	3	4	5
6 219 345						

l) two hundred seventy-nine thousand two hundred sixty-one

	two hundred seventy-nine thousand			two hundred sixty-one		
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
	2	7	9	2	6	1
279 261						

m) four million one hundred seventy thousand three hundred eight

four million	one hundred seventy thousand			three hundred eight		
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
4	1	7	0	3	0	8
4 170 308						

n) nine million five hundred eighty-two thousand sixty-five

nine million	five hundred eighty-two thousand			sixty-five		
millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
9	5	8	2	0	6	5
9 582 065						

Exercise Eight

Write the number in each of the word problems. Check your work using the answer key at the end of the exercise.

- a) The Nile River in Africa is the longest river in the world. It is two thousand five hundred sixty-nine kilometers long. Write the number.

- b) Canada shares a border with the United States that is eight thousand eight hundred ninety-three kilometers long. Write the number.

- c) The distance around the Earth is forty thousand seventy-six kilometers. Write the number.

- d) The population of British Columbia in 2009 was four million four hundred fifty-five thousand two hundred seven. Write the number.
- e) The population of Canada in 1891 was three million two hundred thirty thousand. Write the number.
- f) The distance from Beijing, China to Vancouver is eight thousand five hundred thirty-six kilometers. Write the number.
- g) The distance from Toronto, Ontario to Victoria is four thousand five hundred fifty-eight kilometers. Write the number.
- h) The distance from Halifax, Nova Scotia to Vancouver is six thousand one hundred nineteen kilometers. Write the number.

Answers to Exercise Eight

- | | | |
|---------------------|---------------------|----------------------|
| a) 2 569 kilometers | b) 8 893 kilometers | c) 40 076 kilometers |
| d) 4 455 207 people | e) 3 230 000 people | f) 8 536 kilometers |
| g) 4 558 kilometers | h) 6 119 kilometers | |

A. Write the place value for the underlined digit.**6 marks**a) 8 765 _____ b) 930 _____c) 47 932 _____ d) 85 421 _____e) 279 673 _____ f) 397 _____**B. Write the word names for these numerals.****6 marks**

a) 59 _____

b) 942 _____

c) 7 378 _____

d) 8 200 _____

e) 4 005 _____

f) 58 310 _____

C. Write the numerals for these word names.**5 marks**

a) eight hundred forty-seven _____

b) four thousand three hundred eighty _____

c) two hundred seventy-five thousand eighty-seven _____

d) sixty thousand four hundred sixteen _____

e) fifteen thousand twenty _____

Answers to Topic B Self-Test

A.

- a) tens b) ones c) ten thousands
d) thousands e) hundred thousands f) hundreds

B.

- a) fifty-nine
b) nine hundred forty-two
c) seven thousand three hundred seventy-eight
d) eight thousand two hundred
e) four thousand five
f) fifty-eight thousand three hundred ten

C.

- a) 847 b) 4 380 c) 275 087 d) 60 416 e) 15 020

Topic C: Expanded Form

When we write a number in **expanded form**, each digit is written with its place value.

Example:

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
598 is made of					5	9	8
Each is written					500	90	8
Expanded form	500 + 90 + 8						

Example:

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
1 068 is made of				1	0	6	8
Each is written				1 000		60	8
Expanded form	1 000 + 300 + 60 + 8						

Example:

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
243 690 is made of		2	4	3	6	9	0
Each is written		200 000	40 000	3 000	600	90	0
Expanded form	200 000 + 40 000 + 3 000 + 600 + 90						

Exercise One

Write each number in expanded form. Check your work using the answer key at the end of the exercise.

a) 329

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
329 is made of					3	2	9
Each is written					300	20	9
Expanded form	300 + 20 + 9						

b) 762

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
is made of							
Each is written							
Expanded form							

c) 1 847

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
is made of							
Each is written							
Expanded form							

d) 6 301

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
6 301 is made of							
Each is written							
Expanded form							

e) 16 492

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
16 492 is made of							
Each is written							
Expanded form							

f) 74 296

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
74 296 is made of							
Each is written							
Expanded form							

g) 378 403

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
378 403 is made of							
Each is written							
Expanded form							

h) 721 834

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
721 834 is made of							
Each is written							
Expanded form							

i) 3 816 450

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
3 816 450 is made of							
Each is written							
Expanded form							

j) 2 941 678

	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
2 941 678 is made of							
Each is written							
Expanded form							

Answers to Exercise One

- a) $300 + 20 + 9$
- b) $700 + 60 + 2$
- c) $1\ 000 + 800 + 40 + 7$
- d) $6\ 000 + 300 + 1$
- e) $10\ 000 + 6\ 000 + 400 + 90 + 2$
- f) $70\ 000 + 4\ 000 + 200 + 90 + 6$
- g) $300\ 000 + 70\ 000 + 8\ 000 + 400 + 3$
- h) $700\ 000 + 20\ 000 + 1\ 000 + 800 + 30 + 4$
- i) $3\ 000\ 000 + 800\ 000 + 10\ 000 + 6\ 000 + 400 + 50$
- j) $2\ 000\ 000 + 900\ 000 + 40\ 000 + 1\ 000 + 600 + 70 + 8$

Exercise Two

Write each number from expanded form. Check your work using the answer key at the end of the exercise.

Example: $600 + 30 + 7 = \mathbf{637}$

Example: $7\,000 + 500 + 40 + 1 = \mathbf{7\,541}$

Example: $4\,000\,000 + 600\,000 + 70\,000 + 8\,000 + 900 + 3 = \mathbf{4\,678\,903}$

a) $400 + 10 + 6 =$

b) $500 + 40 + 2 =$

c) $5\,000 + 600 + 10 + 8 =$

d) $4\,000 + 100 + 40 + 5 =$

e) $20\,000 + 1\,000 + 800 + 10 + 2 =$

f) $40\,000 + 200 + 5 =$

g) $30\,000 + 4\,000 + 50 + 3 =$

h) $200\,000 + 50\,000 + 3\,000 + 400 + 80 + 3 =$

i) $300\,000 + 50\,000 + 6\,000 + 700 + 10 + 9 =$

j) $1\,000\,000 + 400\,000 + 20\,000 + 3\,000 + 600 + 50 + 7 =$

Answers to Exercise Two

a) 416

b) 542

c) 5 618

d) 4 145

e) 21 812

f) 40 205

g) 34 053

h) 253 483

i) 356 719

j) 1 423 657

Topic C: Self-Test

Mark / 12

Aim 10/12

A. Write each number in expanded form.

6 marks

a) 643

b) 759

c) 4 821

d) 94 205

e) 367 542

f) 1 850 643

B. Write each number from its expanded form.

6 marks

a) $300 + 60 + 9 =$

b) $700 + 5 =$

c) $1\ 000 + 400 + 90 + 1 =$

d) $20\ 000 + 1\ 000 + 500 + 80 + 4 =$

e) $500\ 000 + 40\ 000 + 2\ 000 + 700 + 30 + 9 =$

f) $3\ 000\ 000 + 900\ 000 + 60\ 000 + 8\ 000 + 400 + 30 + 1 =$

Answers to Topic C Self-Test

A.

a) $600 + 40 + 3$

b) $700 + 50 + 9$

c) $4\,000 + 800 + 20 + 1$

d) $90\,000 + 4\,000 + 200 + 5$

e) $300\,00 + 60\,000 + 7\,000 + 500 + 40 + 2$

f) $1\,000\,000 + 800\,000 + 50\,000 + 600 + 40 + 3$

B.

a) 369

b) 705

c) 1 491

d) 21 584

e) 542 739

f) 3 968 431

Topic D: Ordering Numerals

In this topic you will learn to arrange **numerals** in order from smallest to largest. Sorting numbered papers such as order forms, arranging items by the date and comparing prices are examples of the ways you use this skill. First look at pairs of numerals. Look at two numerals and tell which one is larger. How do you do this?

Exercise One

Draw a box around the larger number in each pair.

- a) 431 484 b) 267 251 c) 684 693
d) 274 315 e) 932 895 f) 792 810

Answers to Exercise One

- b) 267 c) 693 d) 315 e) 932 f) 810

To compare numerals, look at the place with the largest value.

- Example A:** Compare 1 628 and 1 599.
- thousands are the same.
 - hundreds 1 628 has 6 hundreds.
 1 599 has 5 hundreds.
- 1 628 is larger than 1 599.

- Example B:** Compare 13 562 and 13 612
- ten thousands are the same
 - thousands are the same
 - hundreds 13 562 has 5 hundreds
 13 612 has 6 hundreds
- 13612 is larger than 13 562.

Example C: Compare 673 234 and 673 423

- hundred thousands are the same
- ten thousands are the same
- thousands are the same
- hundreds 673 234 has 2 hundreds
 673 423 has 4 hundreds

Note: Numerals with one digit are always less than numerals with two digits.
Numerals with two digits are always less than numerals with three digits, and so on.

9 is less than 15
87 is less than 107
999 is less than 1 001

Exercise Two

Draw a box around the larger numeral in each pair. Check your work using the answer key at the end of the exercise.

- a) 1016 1 316 b) 1 229 1 329 c) 5 230 5 210
- d) 2 151 2 159 e) 83 476 93 475 f) 31 276 31 576
- g) 46 821 46 801 h) 343 3 740 i) 8 325 8 236
- j) 11 278 1 325 k) 4 289 4 230 l) 13 471 13 422
- m) 31 476 32 502 n) 876 2 319 o) 5 618 8 234

Answers to Exercise Two

- | | | | | |
|-----------|-----------|----------|-----------|-----------|
| b) 1 329 | c) 5 280 | d) 2 159 | e) 93 476 | f) 31 576 |
| g) 46 821 | h) 3 740 | i) 8 325 | j) 11 278 | k) 4 289 |
| l) 13 471 | m) 32 502 | n) 2 319 | o) 8 234 | |

Now use the same ideas to arrange more than two numerals in order.

For example, to arrange 6, 616, 1, 66, 666, 61, and 16 in order from **smallest** to **largest**, use the following method:

- First, sort the numerals with the same number of digits into groups.

6, 1 66, 16, 61 and 616, 666

- The group of one digit numerals contains 6 and 1. As 1 is smaller than 6, the list starts with 1, then 6.
- The group of two-digit numerals contains 66, 61, and 16. Use your skills in ordering numerals to see that 16 is smallest, then 61, and 66 is the largest of this group. The list now reads, 1, 6, 16, 61, 66.
- Finally, look at the three-digit numerals, 616 and 666. As 616 is smaller than 666, it will come first. The list now reads:

1, 6, 16, 61, 66, 616, 666.

Exercise Three

Arrange these numbers in order from smallest to largest. Check your work using the answer key at the end of the exercise.

- a) 1 235 1 352 1 523 1 253

- b) 47 259 42 759 45 279 47 592

c) 73 050 76 940 79 053 73 502

d) 456 719 465 981 546 423 564 082

e) 12 546 5 781 423 172 901

f) 114 444 444 14 1 114 444 44

g) 777 17 71 7 177 717 77 177

Answers to Exercise Three

a) 1 235, 1 253, 1 352, 1 523

b) 42 759, 45 279, 47 259, 47 592

c) 73 050, 73, 502, 76 940, 79 053

d) 456 719, 465 981, 546 423, 564 082

e) 423, 5 781, 12 546, 172 901

f) 14, 44, 444, 114 444, 1 114 444

g) 17, 71, 717, 777, 7 177, 77 177

Greater Than, Less Than, Equal

The sign $<$ means **is less than** (smaller than).

The sign $>$ means **is greater than** (bigger than).

The greater than and less than signs always point to the smaller number (that is, the small part of the sign is close to the small number.)

$5 < 12$ 5 is less than 12

$6 > 3$ 6 is greater than 3

The sign $=$ means **equals** and is used when two amounts are the same.

The sign \neq means **not equal to** and is used when two amounts are **not** the same.

Exercise Four

Write $<$, $>$, or $=$ in each blank as needed. Check your work using the answer key at the end of the exercise.

a) 4 376 _____ 12 376

b) 342 981 _____ 324 762

c) 1 520 _____ 1 530

d) 5 821 _____ 5 821

e) 3 674 _____ 3 296

f) 6 214 _____ 6 251

g) 14 879 _____ 14 900

h) 78 432 _____ 78 429

i) 45 823 _____ 54 781

j) 732 591 _____ 732 950

Answers to Exercise Four

a) $<$ b) $>$ c) $<$ d) $=$ e) $>$

f) $<$ g) $<$ h) $>$ i) $<$ j) $<$

Topic D: Self-Test

Mark /12

Aim 10/12

A. Box the larger number of each pair.

6 marks

a) 9 784 7 892

b) 56 663 56 566

c) 13 204 14 420

d) 721 011 721 101

e) 461 300 416 003

f) 2 879 921 2 987 721

B. Arrange these numerals in order from smallest to largest.

2 marks

a) 75 754 475 47 5 747 5 774 77 575

b) 18 23 070 429 7 824 37 994 1 120

C. Write >, <, or = in each blank to make a true statement.

4 marks

a) 3 678 _____ 3 768

b) 14 002 _____ 14 000

c) 38 463 _____ 3 846

d) 10 010 _____ 10 010

Answers to Topic D: Self-Test

A.

a) 9 784

b) 56 663

c) 14 420

d) 721 101

e) 461 300

f) 2 987 721

B.

a) 47, 75, 475, 754, 5 747, 5 774, 77 575

b) 18, 37, 429, 994, 1 120, 7 824, 23 070

C.

a) <

b) >

c) >

d) =

Topic E: Rounding Numbers

We use numbers a lot in our everyday lives. List some of the ways you use numbers.

You may have written money, shopping, time, and counting as part of your answer.

Think about time. Let's say it takes eight minutes to walk to the bus. If someone asks you how long it takes, you will probably say, "About ten minutes."

If you buy a sweater that cost \$29, you may say, "Oh, it was around thirty dollars."

How far is it from Vancouver to Prince George? The map says 796 km, but we would probably say, "About 800 kilometres."

You have just read examples of **rounding numbers**.

We round numbers for many reasons:

- We may not know the exact number.
- The exact number may not be important for what we are doing.
- We may need a **quick way to figure** something out.

When you are rounding numbers, use zeros to hold the places at the end of the number. Work through the following examples and exercises carefully. **Rounding is an important skill.**

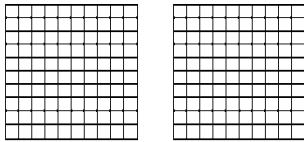
Rounding to the Nearest Hundred

A number rounded to the nearest hundred will have zeros in the ones place **and** in the tens place. The number will end with 000, 100, 200, 300, 400, 500, 600, 700, 800, or 900.

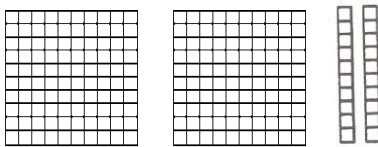
When rounding to the nearest 100, we are looking for the closest group of 100.

Example: **200, 220 and 300.**

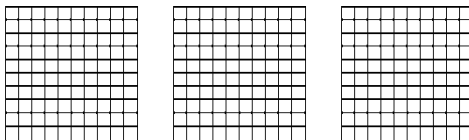
200



220



300



Is 220 closer to 200 or 300? It is closer to 200.

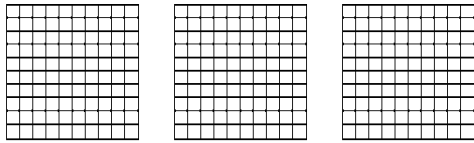
Which gives a better estimate of 220 ... 2 hundreds or 3 hundreds? **2 hundreds**

If we round 220 to nearest hundred, the result would be **200**.

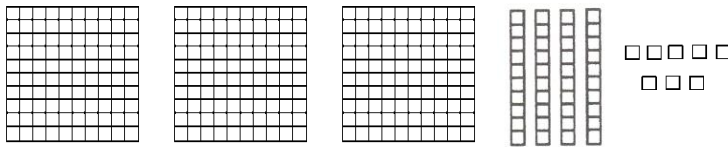
Remember: The rounded number has zeroes in the tens and ones places.

Example: 300, 348 and 400.

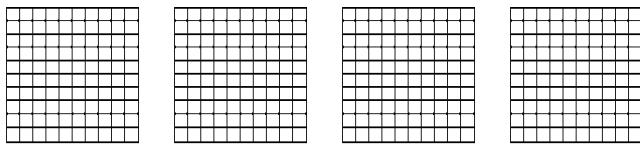
300



348



400



Is 348 closer to 300 or 400? It is closest to **300**.

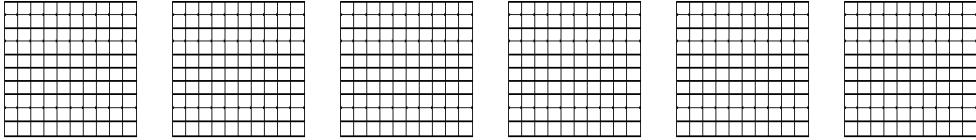
Which gives a better estimate of 348 ...3 hundreds or 4 hundreds? **3 hundreds**

If we round 348 to the nearest 100, the result would be **300**.

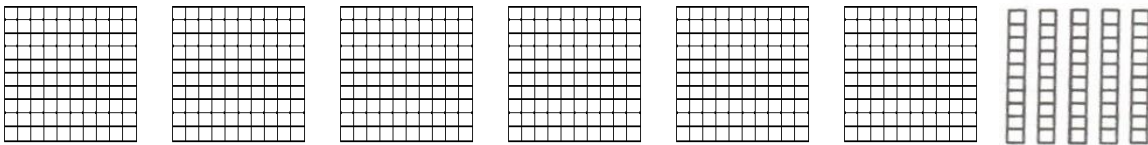
Remember: The rounded number has zeroes in the tens and ones places.

Example: 600, 650 and 700

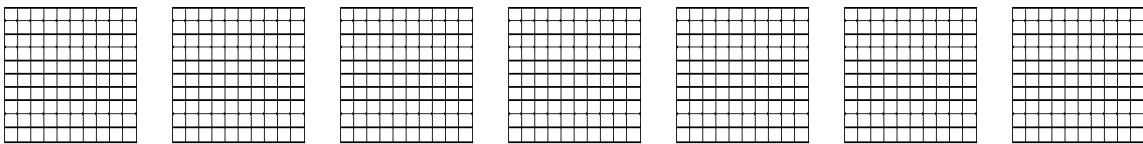
600



650



700



Is 650 closer to 600 or 700? It is closer to **700**.

Which gives a better estimate of 650..... 6 hundreds or 7 hundreds? **7 hundreds**.

If we round 650 to the nearest hundred, the result would be **700**.

When we round a number which has a 5 in the tens place, we always round up to the next hundred.

If we round 650 to nearest hundred, the result would be **700**.

Example: Round 584 to the nearest 100.

584 is between 5 hundreds and 6 hundreds.

584 is closer to 6 hundreds.

Rounded number is 600 .

Exercise One

Round each number to the nearest 100. Check your work using the answer key at the end of the exercise.

a) **232** is between _____ hundreds and _____ hundreds.

232 is closest to _____ hundreds.

Rounded number is _____.

b) **647** is between _____ hundreds and _____ hundreds.

647 is closest to _____ hundreds.

Rounded number is _____.

c) **881** is between _____ hundreds and _____ hundreds.

881 is closest to _____ hundreds.

Rounded number is _____.

d) **152** is between _____ hundreds and _____ hundreds.

152 is closest to _____ hundreds.

Rounded number is _____.

e) **326** is between _____ hundreds and _____ hundreds.

326 is closest to _____ hundreds.

Rounded number is _____.

f) **274** is between _____ hundreds and _____ hundreds.

274 is closest to _____ hundreds.

Rounded number is _____.

g) **550** is between _____ hundreds and _____ hundreds.

550 is closest to _____ hundreds.

Rounded number is _____.

h) **992** is between _____ hundreds and _____ hundreds.

992 is closest to _____ hundreds.

Rounded number is _____.

i) **479** is between _____ hundreds and _____ hundreds.

479 is closest to _____ hundreds.

Rounded number is _____.

j) **712** is between _____ hundreds and _____ hundreds.

712 is closest to _____ hundreds.

Rounded number is _____.

	Number	Closer to _____ hundreds	Rounded Number
k)	43	0 hundreds	0
l)	188		
m)	275		
n)	620		
o)	750		
p)	549		
q)	499		
r)	821		
s)	999		

Answers to Exercise One

- | | | | |
|----------------------|----------------------|-------------------------|-------------------------|
| a) 2 hundreds
200 | b) 6 hundreds
600 | c) 9 hundreds
900 | d) 2 hundreds
200 |
| e) 3 hundreds
300 | f) 3 hundreds
300 | g) 6 hundreds
600 | h) 10 hundreds
1 000 |
| i) 5 hundreds
500 | j) 7 hundreds
700 | k) 0 hundreds
0 | l) 2 hundreds
200 |
| m) 3 hundreds
300 | n) 6 hundreds
600 | o) 8 hundreds
800 | p) 5 hundreds
500 |
| q) 5 hundreds
500 | r) 8 hundreds
800 | s) 10 hundreds
1 000 | |

Now look at a shorter method to round to the nearest 100.

When rounding to the nearest hundred, do this:

Step 1: Underline the hundreds place.

468

Step 2: Look at the digit following in the tens place.

↓
468

Step 3: If the digit in the tens place is less than 5,

- write a zero in the tens place **and** the ones place.
- leave the hundreds digit as it is.

↓
329 rounds to 300 (329 is nearer to 300 than to 400)

↓
846 rounds to 800

↓
608 rounds to 600

Step 4: If the digit in the tens place is 5 or more,

- write a zero in the tens place **and** the ones place.
- add one more hundred to the hundreds place.

↓
362 rounds to **400** (362 is nearer to 400 than to 300)

↓
852 rounds to **900**

↓
964 rounds to **1 000** (one hundred more than 9 hundreds is 10 hundreds)

Note: If you are rounding to the nearest hundred, one and two-digit numerals round like this:

the numbers from 0 to 49 round to **0**

the numbers from 50 to 99 round to **100**.

Exercise Two

Round your answer to the nearest hundred. Check your work using the answer key at the end of the exercise.

- a) $426 \approx$ _____ b) $395 \approx$ _____
c) $638 \approx$ _____ d) $95 \approx$ _____
e) $31 \approx$ _____ f) $211 \approx$ _____
g) $965 \approx$ _____ h) $438 \approx$ _____
i) $703 \approx$ _____ j) $796 \approx$ _____

Any number can be rounded to the nearest hundred.

$$4 \overset{\downarrow}{\underline{8}}27 \approx 4\,800 \quad 92 \overset{\downarrow}{\underline{6}}59 \approx 92\,700 \quad 3 \overset{\downarrow}{\underline{9}}75 \approx 4\,000$$

- k) $8\,372 \approx$ _____ l) $2\,082 \approx$ _____
m) $21\,639 \approx$ _____ n) $42\,983 \approx$ _____
o) $125\,438 \approx$ _____ p) $12\,651 \approx$ _____
q) $3\,888 \approx$ _____ r) $9\,109 \approx$ _____

Answers to Exercise Two

- | | | | | | |
|-----------|-----------|------------|-----------|----------|----------|
| a) 400 | b) 400 | c) 600 | d) 100 | e) 0 | f) 200 |
| g) 1 000 | h) 400 | i) 700 | j) 800 | k) 8 400 | l) 2 100 |
| m) 21 600 | n) 43 000 | o) 125 400 | p) 12 700 | q) 3 900 | r) 9 100 |

Rounding to the Nearest Thousand

A number rounded to the nearest thousand will have zeros in the ones, tens, and hundreds places. The number will end with 0 000, 1 000, 2 000, 3 000, 4 000, 5 000, 6 000, 7 000, 8 000, or 9 000.

When **rounding to the nearest thousand**, do this:

Step 1: Underline the thousands place.

4 398

Step 2: Look at the digit following in the **hundreds place**.

↓
4 398

Step 3: If the digit in the hundreds place is less than 5,

- write a zero in the hundreds place, the tens place, and the ones place.
- leave the thousands digit as it is.

↓
4 398 rounds to 4 000 (4 398 is nearer to 4 000 than to 5 000)
↓
325 263 rounds to 325 000

Step 4: If the digit in the hundreds place is 5 or more,

- write a zero in the hundreds, tens, and ones places.
- add one more thousand to the thousands place.

↓
2 884 rounds to **3** 000 (2884 is nearer to 3 000 than to 2 000)
↓
86 583 rounds to **87** 000
↓
29 965 rounds to **30** 000

Note: If you are rounding to the nearest thousand, one, two, and three-digit numerals round like this:

numerals from 0 to 499 round to **0**

numerals from 500 to 999 round to **1 000**.

Exercise Three

Round your answer to the nearest thousand. Check your work using the answer key at the end of the exercise.

- a) 3 829 \approx _____ b) 2 499 \approx _____
c) 8 309 \approx _____ d) 4 520 \approx _____
e) 9 724 \approx _____ f) 386 \approx _____
g) 2 096 \approx _____ h) 23 716 \approx _____
i) 45 245 \approx _____ j) 8 129 \approx _____
k) 123 542 \approx _____ l) 91 871 \approx _____
m) 724 \approx _____ n) 80 910 \approx _____
o) 14 639 \approx _____ p) 73 816 \approx _____
q) 41 171 \approx _____ r) 52 963 \approx _____
s) 829 527 \approx _____ t) 1 624 099 \approx _____

Answers to Exercise Three

- | | | | | | |
|------------|--------------|-----------|-----------|------------|-----------|
| a) 4 000 | b) 2 000 | c) 8 000 | d) 5 000 | e) 10 000 | f) 0 |
| g) 2 000 | h) 24 000 | i) 45 000 | j) 8 000 | k) 124 000 | l) 92 000 |
| m) 1 000 | n) 81 000 | o) 15 000 | p) 74 000 | q) 41 000 | r) 53 000 |
| s) 830 000 | t) 1 624 000 | | | | |

Rounding to the Nearest Ten Thousand

A number rounded to the nearest ten thousand will have zeros in the ones, tens, hundreds and thousands places. The number will end with 0 000, 10 000, 20 000, 30 000, 40 000, 50 000, 60 000, 70 000, 80 000, or 90 000.

When **rounding to the nearest ten thousand**, do this:

Step 1: Underline the ten thousands place.

42 398

Step 2: Look at the digit following in the **thousands place**.

↓
42 398

Step 3: If the digit in the thousands place is less than 5,

- write a zero in the thousands place, the hundreds place, the tens place, and the ones place.
- leave the ten thousands digit as it is.

↓
42 398 rounds to 40 000 (42 398 is nearer to 40 000 than to 50 000)
↓
253 263 rounds to 250 000

Step 4: If the digit in the thousands place is 5 or more,

- write a zero in the thousands, hundreds, tens, and ones places.
- add one more thousand to the thousands place.

↓
28 884 rounds to **29** 000 (28 884 is nearer to 29 000 than to 28 000)
↓
867 583 rounds to **870** 000
↓
299 965 rounds to **300** 000

Note: If you are rounding to the nearest ten thousand, one, two, three and four-digit numerals round like this:

numerals from 0 to 4 999 round to **0**

numerals from 5 000 to 9 999 round to **10 000**.

Exercise Four

Round your answer to the nearest ten thousand. Check your work using the answer key at the end of the exercise.

- a) 53 829 \approx _____ b) 12 499 \approx _____
c) 86 309 \approx _____ d) 47 520 \approx _____
e) 9 724 \approx _____ f) 386 \approx _____
g) 22 096 \approx _____ h) 23 716 \approx _____
i) 45 245 \approx _____ j) 8 129 \approx _____
k) 123 542 \approx _____ l) 91 871 \approx _____
m) 41 724 \approx _____ n) 80 910 \approx _____
o) 14 639 \approx _____ p) 73 816 \approx _____
q) 41 171 \approx _____ r) 52 963 \approx _____
s) 829 527 \approx _____ t) 1 624 099 \approx _____

Answers to Exercise Four

- | | | | | | |
|------------|--------------|-----------|-----------|------------|-----------|
| a) 50 000 | b) 10 000 | c) 90 000 | d) 50 000 | e) 10 000 | f) 0 |
| g) 20 000 | h) 20 000 | i) 50 000 | j) 10 000 | k) 120 000 | l) 90 000 |
| m) 40 000 | n) 80 000 | o) 10 000 | p) 70 000 | q) 40 000 | r) 50 000 |
| s) 830 000 | t) 1 620 000 | | | | |

Rounding to the Nearest Hundred Thousand

A number rounded to the nearest hundred thousand will have zeros in the ones, tens, hundreds, thousands and ten thousands places. The number will end with 000 000, 100 000, 200 000, 300 000, 400 000, 500 000, 600 000, 700 000, 800 000, or 900 000.

When **rounding to the nearest hundred thousand**, do this:

Step 1: Underline the hundred thousands place.

414 398

Step 2: Look at the digit following in the **ten thousands place**.

↓
414 398

Step 3: If the digit in the ten thousands place is less than 5,

- write a zero in the ten thousands place, the thousands place, the hundreds place, the tens place, and the ones place.
- leave the hundred thousands digit as it is.

↓
414 398 rounds to 400 000
(414 398 is nearer to 400 000 than to 500 000)
↓
536 263 rounds to 500 000

Step 4: If the digit in the thousands place is 5 or more,

- write a zero in the ten thousands place, thousands place, hundreds place, tens place, and ones place.
- add one more thousand to the hundred thousands place.

↓
281 884 rounds to **300** 000
(281 884 is nearer to 300 000 than to 200 000)
↓
672 583 rounds to **700** 000
↓
999 965 rounds to **1000** 000

Note: If you are rounding to the nearest hundred thousand, one, two, three, four and five-digit numerals round like this:

numerals from 0 to 49 999 round to **0**

numerals from 50 000 to 99 999 round to **100 000**.

Exercise Five

Round your answer to the nearest hundred thousand. Check your work using the answer key at the end of the exercise.

- a) 143 829 \approx _____ b) 12 499 \approx _____
c) 861 309 \approx _____ d) 472 520 \approx _____
e) 96 724 \approx _____ f) 386 174 \approx _____
g) 221 096 \approx _____ h) 283 716 \approx _____
i) 457 245 \approx _____ j) 87 129 \approx _____
k) 123 542 \approx _____ l) 91 871 \approx _____
m) 419 724 \approx _____ n) 801 910 \approx _____
o) 141 639 \approx _____ p) 736 816 \approx _____
q) 413 171 \approx _____ r) 525 963 \approx _____
s) 829 527 \approx _____ t) 1 624 099 \approx _____

Answers to Exercise Five

- | | | | | | |
|------------|--------------|------------|------------|------------|------------|
| a) 100 000 | b) 0 | c) 900 000 | d) 500 000 | e) 100 000 | f) 400 000 |
| g) 200 000 | h) 300 000 | i) 500 000 | j) 100 000 | k) 100 000 | l) 100 000 |
| m) 400 000 | n) 800 000 | o) 100 000 | p) 700 000 | q) 400 000 | r) 500 000 |
| s) 800 000 | t) 1 600 000 | | | | |

Rounding to the Nearest Million

A number rounded to the nearest million will have zeros in the ones, tens, hundreds, thousands, ten thousands and hundred thousands places. The number will end with 000 000, 1 000 000, 2 000 000, 3 000 000, 4 000 000, 5 000 000, 6 000 000, 7 000 000, 8 000 000, or 9 000 000.

When **rounding to the nearest million**, do this:

Step 1: Underline the **millions** place.

4 214 398

Step 2: **Look** at the digit following in the **hundred thousands** place.

↓
4 214 398

Step 3: **If the digit in the hundred thousands place is less than 5,**

- write a zero in the hundred thousands place, the ten thousands place, the thousands, the hundreds place, the tens place, and the ones place.
- leave the millions digit as it is.

↓
4 214 398 rounds to 4 000 000
(4 214 398 is nearer to 4 000 000 than to 500 000)
↓
5 367 263 rounds to 5 000 000

Step 4: **If the digit in the hundred thousands place is 5 or more,**

- write a zero in the hundred thousands place, the ten thousands place, the thousands place, the hundreds place, tens place, and ones place.
- add one more thousand to the thousands place.

↓
2 818 884 rounds to **3** 000 000
(2 818 884 is nearer to 3 000 000 than to 2 000 000)
↓
6 729 583 rounds to **7** 000 000
↓
9 991 965 rounds to **10** 000 000

Note: If you are rounding to the nearest million, one, two, three, four, five and six-digit numerals round like this:

numerals from 0 to 499 999 round to **0**

numerals from 500 000 to 999 999 round to **1 000 000**.

Exercise Six

Round your answer to the nearest million. Check your work using the answer key at the end of the exercise.

- a) 2 143 829 \approx _____ b) 4 612 499 \approx _____
c) 2 861 309 \approx _____ d) 8 472 520 \approx _____
e) 3 196 724 \approx _____ f) 386 174 \approx _____
g) 9 221 096 \approx _____ h) 1 283 716 \approx _____
i) 8 457 245 \approx _____ j) 7 287 129 \approx _____
k) 6 123 542 \approx _____ l) 2 391 871 \approx _____
m) 5 419 724 \approx _____ n) 2 801 910 \approx _____
o) 941 639 \approx _____ p) 3 736 816 \approx _____
q) 3 413 171 \approx _____ r) 4 525 963 \approx _____
s) 1 829 527 \approx _____ t) 1 624 099 \approx _____

Answers to Exercise Six

- a) 2 000 000 b) 5 000 000 c) 3 000 000 d) 8 000 000 e) 3 000 000 f) 0
g) 9 000 000 h) 1 000 000 i) 8 000 000 j) 7 000 000 k) 6 000 000 l) 2 000 000
m) 5 000 000 n) 3 000 000 o) 4 000 000 p) 1 000 000 q) 3 000 000 r) 5 000 000
s) 2 000 000 t) 2 000 000

Exercise Seven

For each problem, round to the number asked. Check your work using the answer key at the end of the exercise.

Example: Juan had 1 094 baseball cards. Adamo has 2 106 baseball cards. Ho has 1 589 baseball cards. Round each number to the nearest 100.

Name	Number	Rounded Number
Juan	1 094	1 100
Adamo	2 106	2 100
Ho	1 589	1 600

- a) On Friday, 5 479 people went the football game. On Saturday, 4 388 people went to the football game. On Sunday 4 834 people went to the basketball game. Round each number to the nearest hundred.

Day	Number	Rounded Number
Friday		
Saturday		
Sunday		

- b) Mount Logan in the Yukon is the highest mountain in Canada. It is 5 956 meters. Mount Waddington is the highest mountain in British Columbia. It is 4 019 meters. Mount Columbia is the highest mountain in Alberta. It is 3 741 meters. Round each number to the nearest hundred.

Mountain	Number	Rounded Number
Mount Logan		
Mount Waddington		
Mount Columbia		

- c) The Connaught Tunnel is 8 082 meters long, The Mount MacDonald Tunnel is 14 700 meters long. The Deas Island Tunnel is 629 meters long. Round each number to the nearest thousand.

Tunnel	Number	Rounded Number
Connaught Tunnel		
Mount MacDonald Tunnel		
Deas Island Tunnel		

- d) The area of British Columbia is 944 735 square kilometers. The area of Alberta is 661 848 square kilometers. The area of Saskatchewan is 651 036 square kilometers. Round each number to the nearest ten thousand.

Province	Number	Rounded Number
British Columbia		
Alberta		
Saskatchewan		

- e) In 2009, The population of British Columbia is 4 455 200 people. The population of Ontario is 13 069 200 people. The population of Quebec is 7 828 900. Round each number to the nearest hundred thousand.

Province	Number	Rounded Number
British Columbia		
Ontario		
Quebec		

- f) In 2009, the population of Denmark was 5 534 738. The population in Norway is 4 876 100. The population in Ireland is 4 459 300. Round each number to the nearest million.

Country	Number	Rounded Number
Denmark		
Norway		
Ireland		

Answers to Exercise Seven

a)

Day	Number	Rounded Number
Friday	5 479	5 500
Saturday	4 388	4 800
Sunday	4 834	4 800

b)

Mountain	Number	Rounded Number
Mount Logan	5 965 meters	6 000 meters
Mount Waddington	4 019 meters	4 000 meters
Mount Columbia	3 741 meters	3 700 meters

c)

Tunnel	Number	Rounded Number
Connaught Tunnel	8 082 meters	8 000 meters
Mount MacDonal Tunnel	14 700 meters	15 000 meters
Deas Island Tunnel	692 meters	1 000 meters

d)

Province	Number	Rounded Number
British Columbia	944 735 square meters	940 000 square meters
Alberta	661 848 square meters	660 000 square meters
Saskatchewan	651 035 square meters	650 000 square meters

e)

Province	Number	Rounded Number
British Columbia	4 455 200 people	4 500 000 people
Ontario	13 069 200 people	13 100 000 people
Quebec	7 828 900 people	7 800 000 people

f)

Country	Number	Rounded Number
Denmark	5 534 738 people	6 000 000 people
Norway	4 876 100 people	5 000 000 people
Ireland	4 459 300 people	4 000 000 people

A. Round your answer to the nearest hundred.**4 marks**

a) $329 \approx$ _____

b) $2\,481 \approx$ _____

c) $8\,065 \approx$ _____

d) $3\,916 \approx$ _____

B. Round your answer to the nearest thousand.**4 marks**

a) $5\,521 \approx$ _____

b) $21\,813 \approx$ _____

c) $46\,499 \approx$ _____

d) $34\,860 \approx$ _____

C. Round your answer to the nearest ten thousand. 4 marks

a) $15\,521 \approx$ _____

b) $26\,318 \approx$ _____

c) $176\,994 \approx$ _____

d) $864\,860 \approx$ _____

D. Round your answer to the nearest hundred thousand.**4 marks**

a) $523\,521 \approx$ _____

b) $821\,932 \approx$ _____

c) $761\,949 \approx$ _____

d) $464\,051 \approx$ _____

E. Round your answer to the nearest million.**4 marks**

a) $7\,312\,908 \approx$ _____

b) $6\,009\,280 \approx$ _____

c) $9\,152\,801 \approx$ _____

d) $576\,679 \approx$ _____

F. For each problem, round to the number asked.

16 Marks

- a) The longest river in North America is the Mississippi River which is 6 275 kilometers long. The longest river in Canada is the Mackenzie River which is 4 242 kilometers long. The Yukon River is 3 701 kilometers long. The St. Lawrence River is 3 058 kilometers long. Round each number to the nearest hundred.

River	Number	Rounded Number
Mississippi River		
Mackenzie River		
Yukon River		
St. Lawrence River		

- b) In 2009, the population of Shanghai, China was 13 831 900. The population of Moscow, Russia was 10 508 971. The population of New York City, United States of America was 8 363 710. The population of Vancouver, Canada was 578 041. Round each of these numbers to the nearest hundred thousand.

City	Number	Rounded Number
Shanghai, China		
Moscow, Russia		
New York City, USA		
Vancouver, Canada		

Answers to Topic E Self-Test**A.**

a) 300 b) 2 500 c) 8 100 d) 4 000

B.

a) 6 000 b) 22 000 c) 46 000 d) 35 000

C.

a) 20 000 b) 30 000 c) 180 000 d) 860 000

D.

a) 500 000 b) 800 000 c) 800 000 d) 500 000

E.

a) 7 000 000 b) 6 000 000 c) 9 000 000 d) 1 000 000

F.

a)

River	Number	Rounded Number
Mississippi River	6 275 kilometers	6 300 kilometers
Mackenzie River	4 242 kilometers	4 200 kilometers
Yukon River	3 701 kilometers	3 700 kilometers
St. Lawrence River	3 058 kilometers	3 100 kilometers

b)

City	Number	Rounded Number
Shanghai, China	13 831 900 people	13 800 000 people
Moscow, Russia	10 508 971 people	10 500 000 people
New York City, USA	8 363 710 people	8 400 000 people
Vancouver, Canada	578 041 people	600 000 people

Unit 1 Review - Number Sense

You will now practice all the skills you learned in Unit 1. Check your work using the answer key at the end of the review.

A. Write the place value names (ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions) for each underlined digit.

- a) 4 392 _____ b) 765 _____
c) 18 293 _____ d) 56 428 _____
e) 3 641 758 _____ f) 426 153 _____
g) 8 429 576 _____ h) 4 258 _____

B. Using the number below, write the digit that is in each of the following place values.

349 285 106

- a) millions _____ b) ones _____
c) ten thousands _____ d) thousands _____
e) hundreds _____ f) hundreds thousands _____
g) tens _____

C. Underline the digit for the place value named.

- a) hundreds 5 321 b) tens 8 703
c) ten thousands 34 891 d) hundred thousands 891 402
e) thousands 72 491 f) millions 4 201 856

D. Write the word names for the numbers.

a) 818 _____

b) 1 678 _____

c) 29 764 _____

d) 1 984 152 _____

e) 42 803 _____

f) 226 917 _____

E. Write the numerals for these word names.

a) twenty-five thousand one hundred thirty-two _____

b) one thousand two hundred seven _____

c) two hundred fifteen thousand twenty-four _____

d) one million six hundred ninety-five thousand four hundred twenty _____

e) seven hundred twenty-six _____

f) nine thousand four _____

F. Write each number in expanded form.

a) 184 _____

b) 3 908 _____

c) 61 281 _____

d) 1 539 587 _____

e) 366 524 _____

G. Write each number from expanded form.

a) $50\,000 + 6\,000 + 600 + 90 + 8$ _____

b) $200\,000 + 70\,000 + 8\,000 + 200 + 60 + 1$ _____

c) $3\,000 + 800 + 80 + 5$ _____

d) $1\,000\,000 + 400\,000 + 70\,000 + 6\,000 + 100 + 50 + 3$

e) $700 + 1$ _____

H. Arrange these numbers in order from smallest to largest.

a) 18 34 937 727 1 487 147 832

b) 769 6 790 697 76 976 76 796

I. Write $<$, $>$, or $=$ in each blank as needed.

a) $9\,698$ _____ $6\,899$

b) $7\,542$ _____ 7452

c) $34\,682$ _____ $39\,421$

d) $124\,693$ _____ $124\,693$

e) $738\,423$ _____ $783\,423$

f) $45\,832$ _____ $54\,123$

J. Round each number to the nearest hundred.

a) $774 \approx$ _____

b) $2\,581 \approx$ _____

c) $21\,204 \approx$ _____

d) $692 \approx$ _____

e) $572\,098 \approx$ _____

f) $7\,652\,931 \approx$ _____

K. Round each number to the nearest thousand

a) $948 \approx$ _____

b) $75\,767 \approx$ _____

c) $288\,869 \approx$ _____

d) $479 \approx$ _____

e) $3\,976 \approx$ _____

f) $5\,012 \approx$ _____

L. Round each number to the nearest ten thousand.

a) $4\,028 \approx$ _____

b) $226\,917 \approx$ _____

c) $126\,804 \approx$ _____

d) $9\,794\,487 \approx$ _____

- e) $87\,805 \approx$ _____ f) $5\,912 \approx$ _____

M. Round each number to the nearest hundred thousand.

- a) $687\,029 \approx$ _____ b) $1\,326\,876 \approx$ _____
 c) $523\,715 \approx$ _____ d) $4\,766\,883 \approx$ _____
 e) $8\,182\,390 \approx$ _____ f) $792\,013 \approx$ _____

N. Round each number to the nearest million.

- a) $1\,009\,627 \approx$ _____ b) $28\,101\,052 \approx$ _____
 c) $894\,063 \approx$ _____ d) $9\,778\,656 \approx$ _____
 e) $80\,379\,591 \approx$ _____ f) $3\,102\,975 \approx$ _____

O. Word Problems.

- a) The three heaviest sharks are the whale shark weighing 30 500 kilograms. The basking shark weighing 9 258 kilograms. The great white shark weighing 3 507 kilograms. Round each number to the nearest thousand.

Shark	Number	Rounded Number
Whale shark		
Basking shark		
Great White Shark		

- b) Three of the largest islands in the world are New Guinea covering 785 753 square kilometers, Baffin Island covering 503 944 square kilometers and Honshu Island covering 227 413 square kilometers. Round each number to the nearest ten thousand.

Island	Number	Rounded Number
New Guinea		
Baffin Island		
Honshu Island		

Answers to Unit 1 Review – Number Sense

A.

- a) tens b) ones c) thousands d) hundreds
e) hundred thousands f) ten thousands g) millions h) thousands

B.

- a) 2 b) 6 c) 8 d) 5
e) 1 f) 2 g) 0

C.

- a) 5 321 b) 8 703 c) 34 891 d) 891 402
e) 72 491 f) 4 201 856

D.

- a) eight hundred eighteen
b) one thousand six hundred seventy-eight
c) twenty-nine thousand seven hundred sixty-four
d) one million nine hundred eighty-four thousand one hundred fifty-two
e) forty-two thousand eight hundred three
f) two hundred twenty-six thousand nine hundred seventeen

E.

- a) 25 132 b) 1 207 c) 215 024 d) 1 695 420
e) 726 f) 9 004

F.

- a) $100 + 80 + 4$
b) $3\,000 + 900 + 8$
c) $60\,000 + 1\,000 + 200 + 80 + 1$
d) $1\,000\,000 + 500\,000 + 30\,000 + 9\,000 + 500 + 80 + 7$
e) $300\,000 + 60\,000 + 6\,000 + 500 + 20 + 4$

G.

- a) 56 698 b) 278 261 c) 3 885 d) 1 476 153
e) 701

H.

- a) 18, 727, 1 487, 34 937, 147 832
b) 697, 769, 6 790, 76 796, 76 976

I.

- a) > b) > c) < d) =
e) < f) <

J.

- a) 800 b) 2 600 c) 21 200 d) 700
 e) 572 100 f) 7 652 900

K.

- a) 1 000 b) 76 000 c) 289 000 d) 0
 e) 4 000 f) 5 000

L.

- a) 0 b) 230 000 c) 130 000 d) 9 790 000
 e) 90 000 f) 10 000

M.

- a) 700 000 b) 1 300 000 c) 500 000 d) 4 800 000
 e) 8 200 000 f) 800 000

N.

- a) 1 000 000 b) 28 000 000 c) 1 000 000 d) 10 000 000
 e) 80 000 000 f) 3 000 000

O.

a)

Shark	Number	Rounded Number
Whale shark	30 500	31 000
Basking shark	9 258	9 000
Great White Shark	3507	4 000

b)

Kilometers	Number	Rounded Number
New Guinea	785 753	790 000
Baffin Island	503 944	500 000
Honshu Island	227 413	230 000

CONGRATULATIONS!!

Now you have finished Unit 1.

TEST TIME!

Ask your instructor for the Practice Test for this unit.

Once you've done the practice test,
you need to do the unit 1 test.

Again, ask your instructor for this.

Good luck!

Unit 2

Addition

Topic A: Addition

Addition puts amounts together. The answer of addition is called the **sum** or the **total**.

The **plus sign** + means to add.

$$\diamond \diamond \diamond + \diamond \diamond = \diamond \diamond \diamond \diamond \diamond$$

$$3 + 2 = 5 \quad \text{says } \mathbf{three \ plus \ two \ equals \ five}$$

or **three and two is five**

The **sum** is 5.

Exercise One

Check out your **addition facts** by doing this exercise as quickly as possible without counting. The highest **total** or **sum** (what the numbers add up to) for these number facts is 20. Check your work using the answer key at the end of the exercise. Then, make a list of any addition facts you do not know or which are slow – practice them. If you feel you need more practice, see your instructor.

a)
$$\begin{array}{r} 6 \\ +7 \\ \hline 13 \end{array}$$

b)
$$\begin{array}{r} 8 \\ +3 \\ \hline 11 \end{array}$$

c)
$$\begin{array}{r} 4 \\ +2 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 8 \\ +7 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 1 \\ +2 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 6 \\ +4 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 5 \\ +8 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 2 \\ +5 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 7 \\ +6 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 0 \\ +3 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 9 \\ +7 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 7 \\ +2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 4 \\ +4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 3 \\ +5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 4 \\ +6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 8 \\ +1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 9 \\ +6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 1 \\ +3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 0 \\ +2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 4 \\ +9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 9 \\ +2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 4 \\ +1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 8 \\ +8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 1 \\ +5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{y)} \quad 7 \\ +3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{z)} \quad 2 \\ +2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{aa)} \quad 9 \\ +5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{bb)} \quad 6 \\ +1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{cc)} \quad 6 \\ +0 \\ \hline \end{array}$$

$$\begin{array}{r} \text{dd)} \quad 3 \\ +2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ee)} \quad 4 \\ +8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ff)} \quad 5 \\ +5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{gg)} \quad 3 \\ + 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{hh)} \quad 9 \\ + 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ii)} \quad 3 \\ + 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{jj)} \quad 2 \\ + 3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{kk)} \quad 1 \\ + 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ll)} \quad 2 \\ + 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{mm)} \quad 6 \\ + 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{nn)} \quad 5 \\ + 4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{oo)} \quad 6 \\ + 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{pp)} \quad 4 \\ + 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{qq)} \quad 1 \\ + 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{rr)} \quad 5 \\ + 6 \\ \hline \end{array}$$

Answers to Exercise One

a) 13	b) 11	c) 6	d) 15	e) 3	f) 10	g) 13
h) 7	i) 13	j) 3	k) 16	l) 9	m) 8	n) 8
o) 10	p) 9	q) 15	r) 4	s) 2	t) 13	u) 11
v) 5	w) 16	x) 6	y) 10	z) 4	aa) 14	bb) 7
cc) 6	dd) 5	ee) 12	ff) 10	gg) 9	hh) 17	ii) 12
jj) 5	kk) 10	ll) 10	mm) 12	nn) 9	oo) 14	pp) 9
qq) 8	rr) 11					

Addition of Larger Numbers

Use these steps to complete each addition question.

Step 1: Add the ones to the ones.

Step 2: Add the tens to the tens.

Step 3: Add the hundreds to the hundreds.

Step 4: Add the thousands to the thousands.

Step 5: Add the ten thousands to the ten thousands.

Etc.

Example A:

$$\begin{array}{r} 23 \\ + 56 \\ \hline \end{array}$$

Step 1: Add the ones to the ones. 3 ones + 6 ones = 9 ones

$$\begin{array}{r} 23 \\ + 56 \\ \hline 9 \end{array}$$

Write the answer in line with the ones in the question.

Step 2: Add the tens. 2 tens + 5 tens = 7 tens

$$\begin{array}{r} 23 \\ + 56 \\ \hline 79 \end{array}$$

The sum of $23 + 56 = 79$

Exercise One

Find the sums. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 37 \\ + 42 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 55 \\ + 22 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 70 \\ + 17 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 27 \\ + 32 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 87 \\ + 12 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 33 \\ + 64 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 44 \\ + 50 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 34 \\ + 11 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 51 \\ + 23 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 12 \\ + 46 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 17 \\ + 21 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 70 \\ + 28 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 54 \\ + 23 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 62 \\ + 14 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 15 \\ + 12 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 45 \\ + 23 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 23 \\ + 64 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 53 \\ + 42 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 60 \\ + 23 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 49 \\ + 10 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 75 \\ + 13 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 58 \\ + 21 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 31 \\ + 28 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 24 \\ + 13 \\ \hline \end{array}$$

Answers to Exercise One

a) 79	b) 77	c) 87	d) 59	e) 99	f) 97	g) 94
h) 45	i) 74	j) 58	k) 38	l) 98	m) 77	n) 76
o) 27	p) 68	q) 87	r) 95	s) 83	t) 59	u) 88
v) 79	w) 59	x) 37				

Exercise Two

Find the sums. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 54 \\ + 32 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 20 \\ + 69 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 58 \\ + 21 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 62 \\ + 13 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 73 \\ + 14 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 44 \\ + 54 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 10 \\ + 75 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 36 \\ + 22 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 10 \\ + 36 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 16 \\ + 23 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 40 \\ + 50 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 37 \\ + 32 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 14 \\ + 50 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 23 \\ + 16 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 41 \\ + 38 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 40 \\ + 11 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 28 \\ + 70 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 21 \\ + 56 \\ \hline \end{array}$$

s)
$$\begin{array}{r} 72 \\ + 12 \\ \hline \end{array}$$

t)
$$\begin{array}{r} 31 \\ + 14 \\ \hline \end{array}$$

u)
$$\begin{array}{r} 47 \\ + 12 \\ \hline \end{array}$$

v)
$$\begin{array}{r} 34 \\ + 65 \\ \hline \end{array}$$

w)
$$\begin{array}{r} 63 \\ + 34 \\ \hline \end{array}$$

x)
$$\begin{array}{r} 31 \\ + 45 \\ \hline \end{array}$$

Answers to Exercise Two

a) 86	b) 89	c) 79	d) 75	e) 87	f) 98	g) 85
h) 58	i) 46	j) 39	k) 90	l) 69	m) 64	n) 39
o) 79	p) 51	q) 98	r) 77	s) 84	t) 45	u) 59
v) 99	w) 97	x) 76				

Exercise Three

Find the sums. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 47 \\ + 51 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 65 \\ + 24 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 78 \\ + 21 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 84 \\ + 12 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 73 \\ + 22 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 64 \\ + 13 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 25 \\ + 64 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 51 \\ + 38 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 26 \\ + 43 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 40 \\ + 57 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 76 \\ + 23 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 86 \\ + 13 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 28 \\ + 71 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 35 \\ + 62 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 27 \\ + 12 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 19 \\ + 40 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 41 \\ + 43 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 53 \\ + 32 \\ \hline \end{array}$$

s)
$$\begin{array}{r} 61 \\ + 22 \\ \hline \end{array}$$

t)
$$\begin{array}{r} 52 \\ + 21 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 23 \\ + 64 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 32 \\ + 43 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 13 \\ + 65 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 46 \\ + 42 \\ \hline \end{array}$$

Answers to Exercise Three

a) 98	b) 89	c) 99	d) 96	e) 95	f) 77	g) 89
h) 89	i) 69	j) 97	k) 99	l) 99	m) 99	n) 97
o) 39	p) 59	q) 84	r) 85	s) 83	t) 73	u) 87
v) 75	w) 78	x) 88				

Exercise Four

Find the sums. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 32 \\ + 64 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 23 \\ + 54 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 61 \\ + 22 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 83 \\ + 11 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 32 \\ + 45 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 63 \\ + 33 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 75 \\ + 24 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 46 \\ + 12 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 44 \\ + 35 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 25 \\ + 42 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 41 \\ + 38 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 54 \\ + 45 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 25 \\ + 32 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 35 \\ + 42 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 32 \\ + 44 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 22 \\ + 14 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 57 \\ + 21 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 42 \\ + 54 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 34 \\ + 23 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 25 \\ + 42 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 13 \\ + 41 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 60 \\ + 25 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 34 \\ + 62 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 77 \\ + 21 \\ \hline \end{array}$$

Answers to Exercise Four

a) 96	b) 77	c) 83	d) 94	e) 77	f) 96	g) 99
h) 58	i) 79	j) 67	k) 79	l) 99	m) 57	n) 77
o) 76	p) 36	q) 78	r) 96	s) 57	t) 67	u) 54
v) 85	w) 96	x) 98				

To add three or more numbers together, use the following steps.

Step 1: Add the ones to the ones.

Step 2: Add the tens to the tens.

Step 3: Add the hundreds to the hundreds.

Step 4: Add the thousands to the thousands.

Step 5: Add the ten thousands to the ten thousands.

Example A:

$$\begin{array}{r} 24 \\ 52 \\ + 73 \\ \hline \end{array}$$

Step 1: Add the ones. 4 ones + 2 ones + 3 ones = 9 ones

$$\begin{array}{r} 24 \\ 52 \\ + 73 \\ \hline 9 \end{array}$$

Step 2: Add the tens. 2 tens + 5 tens + 7 ten = 14 tens

$$\begin{array}{r} 24 \\ 52 \\ + 73 \\ \hline 149 \end{array}$$

Exercise Five

Find the sums. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 21 \\ \quad 34 \\ \hline + 44 \end{array}$$

$$\begin{array}{r} \text{b)} \quad 11 \\ \quad 61 \\ \hline + 15 \end{array}$$

$$\begin{array}{r} \text{c)} \quad 23 \\ \quad 38 \\ \hline + 41 \end{array}$$

$$\begin{array}{r} \text{d)} \quad 20 \\ \quad 43 \\ \hline + 36 \end{array}$$

$$\begin{array}{r} \text{e)} \quad 13 \\ \quad 42 \\ \hline + 34 \end{array}$$

$$\begin{array}{r} \text{f)} \quad 33 \\ \quad 64 \\ \hline + 22 \end{array}$$

$$\begin{array}{r} \text{g)} \quad 44 \\ \quad 50 \\ \hline + 24 \end{array}$$

$$\begin{array}{r} \text{h)} \quad 37 \\ \quad 42 \\ \hline + 10 \end{array}$$

$$\begin{array}{r} \text{i)} \quad 55 \\ \quad 24 \\ \hline + 30 \end{array}$$

$$\begin{array}{r} \text{j)} \quad 82 \\ \quad 17 \\ \hline + 50 \end{array}$$

$$\begin{array}{r} \text{k)} \quad 45 \\ \quad 32 \\ \hline + 52 \end{array}$$

$$\begin{array}{r} \text{l)} \quad 70 \\ \quad 21 \\ \hline + 48 \end{array}$$

$$\begin{array}{r} \text{m)} \quad 12 \\ \quad 54 \\ \hline + 62 \end{array}$$

$$\begin{array}{r} \text{n)} \quad 25 \\ \quad 61 \\ \hline + 22 \end{array}$$

$$\begin{array}{r} \text{o)} \quad 32 \\ \quad 23 \\ \hline + 94 \end{array}$$

$$\begin{array}{r} \text{p)} \quad 33 \\ \quad 55 \\ \hline + 21 \end{array}$$

$$\begin{array}{r} \text{q)} \quad 31 \\ \quad 12 \\ \hline + 85 \end{array}$$

$$\begin{array}{r} \text{r)} \quad 41 \\ \quad 31 \\ \hline + 87 \end{array}$$

$$\begin{array}{r} \text{s)} \quad 17 \\ \quad 42 \\ \hline + 50 \end{array}$$

$$\begin{array}{r} \text{t)} \quad 56 \\ \quad 31 \\ \hline + 82 \end{array}$$

$$\begin{array}{r} \text{u)} \quad 32 \\ \quad 45 \\ \hline + 51 \end{array}$$

$$\begin{array}{r} \text{v)} \quad 24 \\ \quad 65 \\ \hline + 30 \end{array}$$

$$\begin{array}{r} \text{w)} \quad 51 \\ \quad 27 \\ \hline + 41 \end{array}$$

$$\begin{array}{r} \text{x)} \quad 22 \\ \quad 14 \\ \hline + 31 \end{array}$$

Answers to Exercise Five

a) 99	b) 87	c) 102	d) 99	e) 89	f) 119	g) 118
h) 89	i) 109	j) 149	k) 129	l) 139	m) 128	n) 108
o) 149	p) 109	q) 128	r) 159	s) 109	t) 169	u) 128
v) 119	w) 119	x) 67				

Exercise Six

Find the sums. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 31 \\ \quad 25 \\ \hline + 41 \end{array}$$

$$\begin{array}{r} \text{b)} \quad 13 \\ \quad 54 \\ \hline + 72 \end{array}$$

$$\begin{array}{r} \text{c)} \quad 23 \\ \quad 31 \\ \hline + 84 \end{array}$$

$$\begin{array}{r} \text{d)} \quad 53 \\ \quad 62 \\ \hline + 14 \end{array}$$

$$\begin{array}{r} \text{e)} \quad 53 \\ \quad 21 \\ \hline + 84 \end{array}$$

$$\begin{array}{r} \text{f)} \quad 14 \\ \quad 21 \\ \hline + 81 \end{array}$$

$$\begin{array}{r} \text{g)} \quad 42 \\ \quad 25 \\ \hline + 61 \end{array}$$

$$\begin{array}{r} \text{h)} \quad 72 \\ \quad 35 \\ \hline + 41 \end{array}$$

$$\begin{array}{r} \text{i)} \quad 42 \\ \quad 13 \\ \hline + 25 \end{array}$$

$$\begin{array}{r} \text{j)} \quad 54 \\ \quad 34 \\ \hline + 61 \end{array}$$

$$\begin{array}{r} \text{k)} \quad 26 \\ \quad 41 \\ \hline + 92 \end{array}$$

$$\begin{array}{r} \text{l)} \quad 22 \\ \quad 16 \\ \hline + 71 \end{array}$$

$$\begin{array}{r} \text{m)} \quad 64 \\ \quad 20 \\ \hline + 83 \end{array}$$

$$\begin{array}{r} \text{n)} \quad 14 \\ \quad 72 \\ \hline + 46 \end{array}$$

$$\begin{array}{r} \text{o)} \quad 53 \\ \quad 15 \\ \hline + 70 \end{array}$$

$$\begin{array}{r} \text{p)} \quad 31 \\ \quad 47 \\ \hline + 91 \end{array}$$

$$\begin{array}{r} \text{q)} \quad 31 \\ \quad 12 \\ \hline + 44 \end{array}$$

$$\begin{array}{r} \text{r)} \quad 21 \\ \quad 22 \\ \hline + 84 \end{array}$$

$$\begin{array}{r} \text{s)} \quad 41 \\ \quad 52 \\ \hline + 65 \end{array}$$

$$\begin{array}{r} \text{t)} \quad 11 \\ \quad 63 \\ \hline + 74 \end{array}$$

$$\begin{array}{r} \text{u)} \quad 31 \\ \quad 42 \\ \hline + 53 \end{array}$$

$$\begin{array}{r} \text{v)} \quad 32 \\ \quad 25 \\ \hline + 71 \end{array}$$

$$\begin{array}{r} \text{w)} \quad 54 \\ \quad 33 \\ \hline + 10 \end{array}$$

$$\begin{array}{r} \text{x)} \quad 24 \\ \quad 62 \\ \hline + 50 \end{array}$$

Answers to Exercise Six

a) 97	b) 139	c) 138	d) 129	e) 158	f) 116	g) 128
h) 148	i) 80	j) 149	k) 159	l) 109	m) 167	n) 132
o) 138	p) 169	q) 87	r) 127	s) 158	t) 148	u) 126
v) 128	w) 97	x) 136				

Exercise Seven

Find the sums. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 53 \\ \quad 40 \\ \hline + 71 \end{array}$$

$$\begin{array}{r} \text{b)} \quad 22 \\ \quad 51 \\ \hline + 35 \end{array}$$

$$\begin{array}{r} \text{c)} \quad 60 \\ \quad 14 \\ \hline + 23 \end{array}$$

$$\begin{array}{r} \text{d)} \quad 42 \\ \quad 56 \\ \hline + 51 \end{array}$$

$$\begin{array}{r} \text{e)} \quad 23 \\ \quad 45 \\ \hline + 60 \end{array}$$

$$\begin{array}{r} \text{f)} \quad 42 \\ \quad 46 \\ \hline + 51 \end{array}$$

$$\begin{array}{r} \text{g)} \quad 41 \\ \quad 34 \\ \hline + 63 \end{array}$$

$$\begin{array}{r} \text{h)} \quad 24 \\ \quad 31 \\ \hline + 40 \end{array}$$

$$\begin{array}{r} \text{i)} \quad 40 \\ \quad 23 \\ \hline + 62 \end{array}$$

$$\begin{array}{r} \text{j)} \quad 45 \\ \quad 62 \\ \hline + 41 \end{array}$$

$$\begin{array}{r} \text{k)} \quad 13 \\ \quad 52 \\ \hline + 71 \end{array}$$

$$\begin{array}{r} \text{l)} \quad 52 \\ \quad 27 \\ \hline + 30 \end{array}$$

$$\begin{array}{r} \text{m)} \quad 55 \\ \quad 42 \\ \hline + 22 \end{array}$$

$$\begin{array}{r} \text{n)} \quad 51 \\ \quad 26 \\ \hline + 42 \end{array}$$

$$\begin{array}{r} \text{o)} \quad 12 \\ \quad 41 \\ \hline + 83 \end{array}$$

$$\begin{array}{r} \text{p)} \quad 25 \\ \quad 13 \\ \hline + 61 \end{array}$$

$$\begin{array}{r} \text{q)} \quad 34 \\ \quad 21 \\ \hline + 62 \end{array}$$

$$\begin{array}{r} \text{r)} \quad 12 \\ \quad 62 \\ \hline + 41 \end{array}$$

$$\begin{array}{r} \text{s)} \quad 45 \\ \quad 52 \\ \hline + 71 \end{array}$$

$$\begin{array}{r} \text{t)} \quad 52 \\ \quad 27 \\ \hline + 30 \end{array}$$

$$\begin{array}{r} \text{u)} \quad 53 \\ \quad 20 \\ \hline + 62 \end{array}$$

$$\begin{array}{r} \text{v)} \quad 21 \\ \quad 36 \\ \hline + 42 \end{array}$$

$$\begin{array}{r} \text{w)} \quad 34 \\ \quad 21 \\ \hline + 92 \end{array}$$

$$\begin{array}{r} \text{x)} \quad 37 \\ \quad 51 \\ \hline + 21 \end{array}$$

Answers to Exercise Seven

a) 164	b) 108	c) 97	d) 149	e) 128	f) 139	g) 138
h) 95	i) 125	j) 148	k) 136	l) 109	m) 119	n) 119
o) 136	p) 99	q) 117	r) 115	s) 168	t) 109	u) 135
v) 99	w) 147	x) 109				

Exercise Eight

Find the sums. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 32 \\ 53 \\ + 14 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 42 \\ 25 \\ + 11 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 24 \\ 81 \\ + 13 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 52 \\ 24 \\ + 63 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 54 \\ 23 \\ + 71 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 25 \\ 60 \\ + 84 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 41 \\ 32 \\ + 96 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 31 \\ 43 \\ + 85 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 15 \\ 52 \\ + 82 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 43 \\ 21 \\ + 52 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 81 \\ 16 \\ + 42 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 56 \\ 31 \\ + 92 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 37 \\ 12 \\ + 80 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 63 \\ 25 \\ + 70 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 70 \\ 24 \\ + 65 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 25 \\ 41 \\ + 73 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 41 \\ 66 \\ + 32 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 24 \\ 33 \\ + 62 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 52 \\ 45 \\ + 21 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 71 \\ 16 \\ + 42 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 64 \\ \quad 12 \\ \hline + 90 \end{array}$$

$$\begin{array}{r} \text{v)} \quad 55 \\ \quad 21 \\ \hline + 43 \end{array}$$

$$\begin{array}{r} \text{w)} \quad 26 \\ \quad 61 \\ \hline + 82 \end{array}$$

$$\begin{array}{r} \text{x)} \quad 44 \\ \quad 53 \\ \hline + 31 \end{array}$$

Answers to Exercise Eight

a) 99	b) 78	c) 118	d) 139	e) 148	f) 169	g) 169
h) 159	i) 149	j) 116	k) 139	l) 179	m) 129	n) 158
o) 159	p) 139	q) 139	r) 119	s) 118	t) 129	u) 166
v) 119	w) 169	x) 128				

Use these steps to complete each addition question.

Step 1: Add the ones to the ones.

Step 2: Add the tens to the tens.

Step 3: Add the hundreds to the hundreds.

Example A:

$$\begin{array}{r} 372 \\ + 415 \\ \hline \end{array}$$

Step 1: Add the ones. 2 ones + 5 ones = 7 ones

$$\begin{array}{r} 372 \\ + 415 \\ \hline 7 \end{array}$$

Step 2: Add the tens. 7 tens + 1 ten = 8 tens

$$\begin{array}{r} 372 \\ + 415 \\ \hline 87 \end{array}$$

Step 3: Add the hundreds. 3 hundreds + 4 hundreds = 7 hundreds

$$\begin{array}{r} 372 \\ + 415 \\ \hline 787 \end{array}$$

Exercise Nine

Find the sums. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 324 \\ + 865 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 514 \\ + 274 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 673 \\ + 326 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 603 \\ + 375 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 174 \\ + 922 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 250 \\ + 618 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 506 \\ + 182 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 514 \\ + 482 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 738 \\ + 510 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 321 \\ + 358 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 215 \\ + 584 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 416 \\ + 352 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 167 \\ + 522 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 315 \\ + 573 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 156 \\ + 732 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 713 \\ + 256 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 135 \\ + 564 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 105 \\ + 632 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 253 \\ + 644 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 535 \\ + 442 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 168 \\ + 421 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 834 \\ + 162 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 422 \\ + 361 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 327 \\ + 462 \\ \hline \end{array}$$

Answers to Exercise Nine

a) 1 189	b) 788	c) 999	d) 978	e) 1 096	f) 868	g) 688
h) 996	i) 1 248	j) 679	k) 799	l) 768	m) 689	n) 888
o) 888	p) 969	q) 699	r) 737	s) 897	t) 977	u) 589
v) 996	w) 783	x) 789				

Exercise Ten

Find the sums. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 286 \\ + 513 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 649 \\ + 250 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 156 \\ + 542 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 503 \\ + 361 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 273 \\ + 620 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 27 \\ + 961 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 852 \\ + 36 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 300 \\ + 50 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 364 \\ + 523 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 568 \\ + 210 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 432 \\ + 325 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 621 \\ + 214 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 312 \\ + 541 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 135 \\ + 420 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 231 \\ + 354 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 532 \\ + 141 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 537 \\ + 21 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 145 \\ + 441 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 235 \\ + 214 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 723 \\ + 113 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 521 \\ + 344 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 624 \\ + 174 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 524 \\ + 221 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 463 \\ + 425 \\ \hline \end{array}$$

Answers to Exercise Ten

a) 799	b) 899	c) 698	d) 864	e) 893	f) 988	g) 888
h) 350	i) 887	j) 778	k) 757	l) 835	m) 853	n) 555
o) 585	p) 673	q) 558	r) 586	s) 449	t) 836	u) 865
v) 798	w) 745	x) 888				

Exercise Eleven

Find the sums. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 172 \\ + 401 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 314 \\ + 553 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 431 \\ + 317 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 213 \\ + 384 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 163 \\ + 224 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 412 \\ + 531 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 731 \\ + 142 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 314 \\ + 524 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 253 \\ + 401 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 243 \\ + 425 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 653 \\ + 434 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 576 \\ + 303 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 732 \\ + 210 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 251 \\ + 734 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 605 \\ + 143 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 715 \\ + 223 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 254 \\ + 125 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 351 \\ + 645 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 754 \\ + 231 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 425 \\ + 143 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 465 \\ + 233 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 501 \\ + 368 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 335 \\ + 403 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 561 \\ + 234 \\ \hline \end{array}$$

Answers to Exercise Eleven

a) 573	b) 867	c) 748	d) 597	e) 387	f) 943	g) 873
h) 838	i) 654	j) 668	k) 1 087	l) 879	m) 942	n) 985
o) 748	p) 938	q) 379	r) 996	s) 985	t) 568	u) 698
v) 869	w) 738	x) 795				

Exercise Twelve

Find the sums. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 754 \\ + 231 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 410 \\ + 257 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 653 \\ + 142 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 815 \\ + 170 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 243 \\ + 146 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 615 \\ + 303 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 124 \\ + 762 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 451 \\ + 206 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 705 \\ + 261 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 627 \\ + 512 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 357 \\ + 130 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 725 \\ + 273 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 753 \\ + 902 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 425 \\ + 203 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 652 \\ + 137 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 357 \\ + 132 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 675 \\ + 214 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 802 \\ + 254 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 524 \\ + 321 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 723 \\ + 306 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 243 \\ + 152 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 145 \\ + 213 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 262 \\ + 321 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 545 \\ + 131 \\ \hline \end{array}$$

Answers to Exercise Twelve

a) 985	b) 667	c) 795	d) 985	e) 389	f) 918	g) 886
h) 657	i) 966	j) 1 139	k) 487	l) 998	m) 1 655	n) 628
o) 789	p) 489	q) 889	r) 1 056	s) 845	t) 1 029	u) 395
v) 358	w) 583	x) 676				

To add three or more numbers together, use the following steps.

Step 1: Add the ones to the ones.

Step 2: Add the tens to the tens.

Step 3: Add the hundreds to the hundreds.

Example A:

$$\begin{array}{r} 372 \\ 415 \\ + 210 \\ \hline \end{array}$$

Step 1: Add the ones. 2 ones + 5 ones + 0 ones = 7 ones

$$\begin{array}{r} 372 \\ 415 \\ + 210 \\ \hline 7 \end{array}$$

Step 2: Add the tens. 7 tens + 1 ten + 1 ten = 9 tens

$$\begin{array}{r} 372 \\ 415 \\ + 210 \\ \hline 97 \end{array}$$

Step 3: Add the hundreds.

3 hundreds + 4 hundreds + 2 hundreds = 9 hundreds

$$\begin{array}{r} 372 \\ 415 \\ + 210 \\ \hline 997 \end{array}$$

Exercise Thirteen

Find the sums. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 345 \\ 132 \\ + 421 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 524 \\ 630 \\ + 721 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 305 \\ 131 \\ + 422 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 214 \\ 341 \\ + 932 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 821 \\ 324 \\ + 423 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 353 \\ 301 \\ + 624 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 435 \\ 201 \\ + 160 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 641 \\ 322 \\ + 833 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 132 \\ 254 \\ + 413 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 713 \\ 102 \\ + 860 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 245 \\ 321 \\ + 803 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 341 \\ 215 \\ + 840 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 524 \\ 243 \\ + 125 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 253 \\ 114 \\ + 321 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 272 \\ 315 \\ + 410 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 514 \\ \quad 231 \\ + 620 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 246 \\ \quad 351 \\ + 502 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 152 \\ \quad 331 \\ + 216 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 164 \\ \quad 233 \\ + 801 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 414 \\ \quad 231 \\ + 552 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 362 \\ \quad 627 \\ + 510 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 264 \\ \quad 535 \\ + 600 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 432 \\ \quad 653 \\ + 313 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 631 \\ \quad 216 \\ + 552 \\ \hline \end{array}$$

Answers to Exercise Thirteen

- | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|
| a) 898 | b) 1 875 | c) 858 | d) 1 487 | e) 1 568 | f) 1 278 | g) 796 |
| h) 1 796 | i) 799 | j) 1 675 | k) 1 369 | l) 1 396 | m) 892 | n) 688 |
| o) 997 | p) 1 365 | q) 1 099 | r) 699 | s) 1 198 | t) 1 197 | u) 1 499 |
| v) 1 399 | w) 1 398 | x) 1 399 | | | | |

Exercise Fourteen

Find the sums. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 731 \\ \quad 142 \\ + 523 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 534 \\ \quad 624 \\ + 741 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 234 \\ \quad 425 \\ + 740 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 413 \\ 155 \\ + 231 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 234 \\ 412 \\ + 543 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 525 \\ 241 \\ + 732 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 423 \\ 140 \\ + 735 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 143 \\ 341 \\ + 614 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 142 \\ 410 \\ + 536 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 211 \\ 425 \\ + 731 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 354 \\ 124 \\ + 611 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 342 \\ 153 \\ + 803 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 213 \\ 462 \\ + 524 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 421 \\ 523 \\ + 654 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 124 \\ 135 \\ + 430 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 421 \\ 342 \\ + 836 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 725 \\ 231 \\ + 421 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 752 \\ 304 \\ + 311 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 523 \\ 364 \\ + 411 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 683 \\ 204 \\ + 310 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 821 \\ 146 \\ + 512 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 433 \\ 125 \\ + 840 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 435 \\ 651 \\ + 812 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 275 \\ 510 \\ + 114 \\ \hline \end{array}$$

Answers to Exercise Fourteen

- a) 1 396 b) 1 899 c) 1 399 d) 799 e) 1 189 f) 1 498 g) 1 298
 h) 1 098 i) 1 088 j) 1 367 k) 1 089 l) 1 298 m) 1 199 n) 1 598
 o) 689 p) 1 599 q) 1 377 r) 1 367 s) 1 298 t) 1 197 u) 1 479
 v) 1 398 w) 1 898 x) 899

Some people like to check their addition by adding a second time, starting with the bottom number instead of the top number. For example,

$$\begin{array}{r} 63 \\ + 35 \\ \hline 98 \end{array}$$

$$\begin{array}{l} \text{Add: } 3 + 5 = 8 \\ 6 + 3 = 9 \end{array}$$

$$\begin{array}{l} \text{Check: } 5 + 3 = 8 \\ 3 + 6 = 9 \end{array}$$

Exercise Fifteen

Find the sums. Check your addition a second time by starting at the bottom. Place a check mark (✓) beside your answer after you have added from the bottom to the top. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 7\,003 \\ + 2\,692 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 6\,217 \\ + 3\,732 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 2\,271 \\ + 3\,618 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 5\,992 \\ + 3\,006 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 4\,235 \\ + 1\,162 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 6\,518 \\ + 2\,050 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 1\,023 \\ + 1\,553 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 4\,034 \\ + 2\,853 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 5\,234 \\ + 1\,244 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 41\,738 \\ + 38\,051 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 20\,295 \\ + 46\,503 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 62\,041 \\ + 12\,857 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 73\,104 \\ + 21\,620 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 40\,835 \\ + 25\,034 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 36\,125 \\ + 60\,471 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 40\,127 \\ + 17\,361 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 40\,261 \\ + 49\,130 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 32\,651 \\ + 43\,225 \\ \hline \end{array}$$

Answers to Exercise Fifteen

a) 9 695 b) 9 949 c) 5 889 d) 8 998 e) 5 397 f) 8 568 g) 2 576
h) 6 887 i) 6 478 j) 79 789 k) 66 798 l) 74 898 m) 94 724 n) 65 869
o) 96 596 p) 57 488 q) 89 391 r) 75 876

If an addition question is written with the numbers side by side, rewrite the question in columns. Put the ones under the ones, the tens under the tens, the hundreds under the hundreds, and so on.

Example A: $263 + 25 =$.

$$\begin{array}{r} 263 \\ + 25 \\ \hline 288 \end{array}$$

Example B: $316 + 9\,560 =$ _____

$$\begin{array}{r} 316 \\ + 9\,560 \\ \hline 9\,876 \end{array}$$

Exercise Sixteen

Rewrite each question in columns and find the total. Check your work using the answer key at the end of the exercise.

a) $75 + 512 =$ _____

b) $372 + 16 =$ _____

c) $691 + 8 =$ _____

d) $4 + 275 =$ _____

e) $3\,457 + 112 =$ _____

f) $2\,403 + 340 =$ _____

g) $730 + 422 + 36 =$ _____

h) $24 + 333 + 442 =$ _____

i) $3\,000 + 24\,132 + 70\,534 =$ _____

j) $34\,511 + 3012 + 40\,234 =$ _____

Answers to Exercise Sixteen

a) 587 b) 388 c) 699 d) 279 e) 3 569 f) 2 743 g) 1 188
h) 799 i) 97 666 j) 77 757

Topic A: Self-Test

Mark /22

Aim 17/22

A. Find the sums. Be sure to check your answers.

6 marks

a)
$$\begin{array}{r} 63 \\ + 25 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 15 \\ + 72 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 43 \\ + 54 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 42 \\ 33 \\ + 14 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 34 \\ 22 \\ + 52 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 21 \\ 46 \\ + 72 \\ \hline \end{array}$$

B. Find the sums. Be sure to check your answers.

6 marks

a)
$$\begin{array}{r} 421 \\ + 354 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 832 \\ + 162 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 956 \\ + 730 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 375 \\ 213 \\ + 611 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 211 \\ 351 \\ + 515 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 731 \\ 245 \\ + 312 \\ \hline \end{array}$$

C. Find the sums. Be sure to check your answers.

6 marks

a)
$$\begin{array}{r} 4\,235 \\ + 4\,730 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 6\,513 \\ + 4\,182 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 8\,250 \\ + 3\,647 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 51\ 672 \\ + 36\ 124 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 25\ 186 \\ + 43\ 503 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 42\ 196 \\ + 70\ 301 \\ \hline \end{array}$$

D. Add these numbers.

4 marks

a) $45 + 21 + 32 =$

b) $242 + 325 + 112 =$

c) $8\ 013 + 1\ 246 + 5\ 430 =$

d) $5\ 214 + 40\ 230 + 2\ 345$

Answers to Topic A Self-Test

A.

a) 88 b) 87 c) 97 d) 89 e) 108 f) 139

B.

a) 775 b) 994 c) 1 686 d) 1 199 e) 1 077 f) 1 288

C.

a) 8 965 b) 10 695 c) 11 897 d) 87 796 e) 68 689 f) 112 497

D.

a) 98 b) 679 c) 14 689 d) 47 789

Topic B: Addition with Carrying

When the digits of one column add up to a two digit number (10 or more), you must **carry** the digit to the next column.

$$\begin{array}{r} \text{Example A: } 27 \\ + 55 \\ \hline \end{array} \qquad \begin{array}{r} 1 \\ 27 \\ + 55 \\ \hline 2 \end{array} \qquad \begin{array}{r} 1 \\ 27 \\ + 55 \\ \hline 82 \end{array}$$

Step 1: Add the ones. 7 ones + 5 ones = 12 ones

Rename 12 ones as 1 ten and 2 ones. Write the 2 ones under the ones column and **carry** the ten to be added with the tens column.

Step 2: Add the tens. 1 ten + 2 tens + 5 tens = 8 tens

$$\begin{array}{r} \text{Example B: } 58 \\ + 76 \\ \hline \end{array} \qquad \begin{array}{r} 1 \\ 58 \\ + 76 \\ \hline \end{array} \qquad \begin{array}{r} 1 \\ 58 \\ + 76 \\ \hline 4 \quad 134 \end{array}$$

Step 1: Add the one. 8 ones + 6 ones = 14 ones

Rename the 14 ones as **1** ten and **4** ones.

Write the 4 ones under the ones column and **carry** the ten to be added with the tens column.

Step 2: Add the tens. 1 ten + 5 tens + 7 tens = 13 tens

The 1 hundred can just be written in the sum because there are no other hundreds to add it to.

Exercise One

Find the sums. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 62 \\ + 18 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 46 \\ + 37 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 49 \\ + 42 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 44 \\ + 26 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 17 \\ + 79 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 23 \\ + 82 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 28 \\ + 91 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 54 \\ + 58 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 68 \\ + 49 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 66 \\ + 35 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 99 \\ + 88 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 89 \\ + 74 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 37 \\ + 15 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 55 \\ + 27 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 29 \\ + 76 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 35 \\ + 69 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 54 \\ + 17 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 72 \\ + 33 \\ \hline \end{array}$$

s)
$$\begin{array}{r} 26 \\ + 56 \\ \hline \end{array}$$

t)
$$\begin{array}{r} 38 \\ + 80 \\ \hline \end{array}$$

u)
$$\begin{array}{r} 47 \\ + 57 \\ \hline \end{array}$$

v)
$$\begin{array}{r} 83 \\ + 27 \\ \hline \end{array}$$

w)
$$\begin{array}{r} 39 \\ + 59 \\ \hline \end{array}$$

x)
$$\begin{array}{r} 78 \\ + 68 \\ \hline \end{array}$$

Answers to Exercise One

a) 80	b) 83	c) 91	d) 70	e) 96	f) 105	g) 119
h) 112	i) 117	j) 101	k) 187	l) 163	m) 52	n) 82
o) 105	p) 104	q) 71	r) 105	s) 82	t) 118	u) 104
v) 110	w) 98	x) 146				

Exercise Two

Find the sums. Check your work using the answer key at the end of the exercise.

a)	$\begin{array}{r} 73 \\ + 52 \\ \hline \end{array}$	b)	$\begin{array}{r} 64 \\ + 93 \\ \hline \end{array}$	c)	$\begin{array}{r} 65 \\ + 64 \\ \hline \end{array}$	d)	$\begin{array}{r} 51 \\ + 78 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

e)	$\begin{array}{r} 82 \\ + 34 \\ \hline \end{array}$	f)	$\begin{array}{r} 60 \\ + 57 \\ \hline \end{array}$	g)	$\begin{array}{r} 47 \\ + 81 \\ \hline \end{array}$	h)	$\begin{array}{r} 56 \\ + 82 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

i)	$\begin{array}{r} 78 \\ + 41 \\ \hline \end{array}$	j)	$\begin{array}{r} 84 \\ + 92 \\ \hline \end{array}$	k)	$\begin{array}{r} 76 \\ + 83 \\ \hline \end{array}$	l)	$\begin{array}{r} 86 \\ + 51 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

m)	$\begin{array}{r} 28 \\ + 76 \\ \hline \end{array}$	n)	$\begin{array}{r} 39 \\ + 92 \\ \hline \end{array}$	o)	$\begin{array}{r} 87 \\ + 73 \\ \hline \end{array}$	p)	$\begin{array}{r} 99 \\ + 51 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

q)	$\begin{array}{r} 79 \\ + 23 \\ \hline \end{array}$	r)	$\begin{array}{r} 56 \\ + 60 \\ \hline \end{array}$	s)	$\begin{array}{r} 27 \\ + 36 \\ \hline \end{array}$	t)	$\begin{array}{r} 47 \\ + 57 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

u)	$\begin{array}{r} 65 \\ + 43 \\ \hline \end{array}$	v)	$\begin{array}{r} 31 \\ + 49 \\ \hline \end{array}$	w)	$\begin{array}{r} 56 \\ + 28 \\ \hline \end{array}$	x)	$\begin{array}{r} 39 \\ + 66 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

Answers to Exercise Two

a) 125	b) 157	c) 129	d) 129	e) 116	f) 117	g) 128
h) 138	i) 119	j) 176	k) 159	l) 137	m) 104	n) 131
o) 160	p) 150	q) 102	r) 116	s) 63	t) 104	u) 108
v) 80	w) 84	x) 105				

Exercise Three

Find the sums. Check your work using the answer key at the end of the exercise.

a)	$\begin{array}{r} 28 \\ + 64 \\ \hline \end{array}$	b)	$\begin{array}{r} 34 \\ + 39 \\ \hline \end{array}$	c)	$\begin{array}{r} 48 \\ + 18 \\ \hline \end{array}$	d)	$\begin{array}{r} 92 \\ + 71 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

e)	$\begin{array}{r} 57 \\ + 86 \\ \hline \end{array}$	f)	$\begin{array}{r} 32 \\ + 79 \\ \hline \end{array}$	g)	$\begin{array}{r} 67 \\ + 84 \\ \hline \end{array}$	h)	$\begin{array}{r} 36 \\ + 96 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

i)	$\begin{array}{r} 56 \\ + 47 \\ \hline \end{array}$	j)	$\begin{array}{r} 64 \\ + 42 \\ \hline \end{array}$	k)	$\begin{array}{r} 56 \\ + 29 \\ \hline \end{array}$	l)	$\begin{array}{r} 25 \\ + 75 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

m)	$\begin{array}{r} 76 \\ + 71 \\ \hline \end{array}$	n)	$\begin{array}{r} 48 \\ + 56 \\ \hline \end{array}$	o)	$\begin{array}{r} 59 \\ + 39 \\ \hline \end{array}$	p)	$\begin{array}{r} 83 \\ + 76 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

$$\begin{array}{r} \text{q)} \quad 65 \\ + 27 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 54 \\ + 94 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 88 \\ + 35 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 91 \\ + 26 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 96 \\ + 55 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 42 \\ + 78 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 96 \\ + 43 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 79 \\ + 38 \\ \hline \end{array}$$

Answers to Exercise Three

a) 92	b) 73	c) 66	d) 163	e) 143	f) 111	g) 151
h) 132	i) 103	j) 106	k) 85	l) 100	m) 147	n) 104
o) 98	p) 159	q) 92	r) 148	s) 123	t) 117	u) 151
v) 120	w) 139	x) 117				

Need some extra practice? Who's the Pig? A Game of Chance.

- This game is played by two people with one set of dice. Ask your instructor for one set of dice.
- The first player to reach 100 or more points is the winner.
- Players take turns rolling the dice.
- You add the amounts on the dice to find your score.
- When it is your turn, you may roll as many times in a row as you like. Therefore, it is possible to score 100 or more points in one turn.
- However, during your turn if you roll a **1 on either die**, you lose all your points for that turn, and your turn is over.
- If you roll a **1 on both dice**, you lose all the points you have, and you have to start all over again at zero, and your turn is over.

Example C:	$\begin{array}{r} 45 \\ 37 \\ + 69 \\ \hline \end{array}$	$\begin{array}{r} \overset{2}{45} \\ 37 \\ + 69 \\ \hline 1 \end{array}$	$\begin{array}{r} \overset{2}{45} \\ 37 \\ + 69 \\ \hline 151 \end{array}$
-------------------	---	--	--

Step 1: Add the ones. 5 ones + 7 ones + 9 ones = 21 ones

Rename 21 ones as 2 tens and 1 one.

Write the one in the sum under the ones column and **carry** the 2 tens to the tens column.

Step 2: Add the tens. 2 tens + 4 tens + 3 tens + 6 tens = 15 tens
15 tens is 1 hundred and 5 tens.

The one hundred can just be written in the sum because there are no other hundreds to add it to.

Exercise Four

Add these numbers. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 23 \\ 14 \\ \hline + 31 \end{array}$$

$$\begin{array}{r} \text{b)} \quad 68 \\ 54 \\ \hline + 27 \end{array}$$

$$\begin{array}{r} \text{c)} \quad 32 \\ 18 \\ \hline + 29 \end{array}$$

$$\begin{array}{r} \text{d)} \quad 8 \\ 13 \\ \hline + 93 \end{array}$$

$$\begin{array}{r} \text{e)} \quad 36 \\ 29 \\ \hline + 16 \end{array}$$

$$\begin{array}{r} \text{f)} \quad 6 \\ 18 \\ \hline + 7 \end{array}$$

$$\begin{array}{r} \text{g)} \quad 28 \\ 16 \\ \hline + 9 \end{array}$$

$$\begin{array}{r} \text{h)} \quad 19 \\ 85 \\ \hline + 37 \end{array}$$

$$\begin{array}{r} \text{i)} \quad 52 \\ 41 \\ \hline + 30 \end{array}$$

$$\begin{array}{r} \text{j)} \quad 26 \\ 30 \\ \hline + 92 \end{array}$$

$$\begin{array}{r} \text{k)} \quad 33 \\ 44 \\ \hline + 57 \end{array}$$

$$\begin{array}{r} \text{l)} \quad 38 \\ 46 \\ \hline + 69 \end{array}$$

$$\begin{array}{r} \text{m)} \quad 49 \\ 65 \\ \hline + 77 \end{array}$$

$$\begin{array}{r} \text{n)} \quad 27 \\ 34 \\ \hline + 46 \end{array}$$

$$\begin{array}{r} \text{o)} \quad 57 \\ 28 \\ \hline + 36 \end{array}$$

$$\begin{array}{r} \text{p)} \quad 42 \\ 54 \\ \hline + 78 \end{array}$$

$$\begin{array}{r} \text{q)} \quad 79 \\ 34 \\ \hline + 29 \end{array}$$

$$\begin{array}{r} \text{r)} \quad 68 \\ 78 \\ \hline + 88 \end{array}$$

$$\begin{array}{r} \text{s)} \quad 25 \\ 36 \\ \hline + 42 \end{array}$$

$$\begin{array}{r} \text{t)} \quad 53 \\ 26 \\ \hline + 13 \end{array}$$

$$\begin{array}{r} \text{u)} \quad 22 \\ 14 \\ + 91 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 75 \\ 16 \\ + 58 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 32 \\ 44 \\ + 28 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 27 \\ 35 \\ + 42 \\ \hline \end{array}$$

Answers to Exercise Four

a) 68	b) 149	c) 79	d) 114	e) 81	f) 31	g) 53
h) 141	i) 123	j) 148	k) 134	l) 153	m) 191	n) 107
o) 121	p) 174	q) 142	r) 234	s) 103	t) 92	u) 127
v) 149	w) 104	x) 104				

Exercise Five

Add these numbers. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 25 \\ 16 \\ + 23 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 46 \\ 23 \\ + 15 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 45 \\ 62 \\ + 71 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 52 \\ 23 \\ + 71 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 35 \\ 12 \\ + 86 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 45 \\ 18 \\ + 32 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 82 \\ 32 \\ + 41 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 18 \\ 45 \\ + 23 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 13 \\ 23 \\ + 36 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 53 \\ 31 \\ + 92 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 44 \\ 82 \\ + 41 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 35 \\ 71 \\ + 60 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 56 \\ \quad 27 \\ \hline + 48 \end{array}$$

$$\begin{array}{r} \text{n)} \quad 41 \\ \quad 22 \\ \hline + 33 \end{array}$$

$$\begin{array}{r} \text{o)} \quad 18 \\ \quad 25 \\ \hline + 44 \end{array}$$

$$\begin{array}{r} \text{p)} \quad 26 \\ \quad 74 \\ \hline + 93 \end{array}$$

$$\begin{array}{r} \text{q)} \quad 71 \\ \quad 80 \\ \hline + 76 \end{array}$$

$$\begin{array}{r} \text{r)} \quad 37 \\ \quad 28 \\ \hline + 56 \end{array}$$

$$\begin{array}{r} \text{s)} \quad 24 \\ \quad 87 \\ \hline + 25 \end{array}$$

$$\begin{array}{r} \text{t)} \quad 53 \\ \quad 42 \\ \hline + 61 \end{array}$$

$$\begin{array}{r} \text{u)} \quad 34 \\ \quad 87 \\ \hline + 28 \end{array}$$

$$\begin{array}{r} \text{v)} \quad 17 \\ \quad 30 \\ \hline + 85 \end{array}$$

$$\begin{array}{r} \text{w)} \quad 52 \\ \quad 24 \\ \hline + 58 \end{array}$$

$$\begin{array}{r} \text{x)} \quad 47 \\ \quad 25 \\ \hline + 64 \end{array}$$

Answers to Exercise Five

a) 64	b) 84	c) 178	d) 146	e) 133	f) 95	g) 155
h) 86	i) 72	j) 176	k) 167	l) 166	m) 131	n) 96
o) 87	p) 193	q) 227	r) 121	s) 136	t) 156	u) 149
v) 132	w) 134	x) 136				

Exercise Six

Find the sums. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 67 \\ \quad 78 \\ \hline + 55 \end{array}$$

$$\begin{array}{r} \text{b)} \quad 42 \\ \quad 13 \\ \hline + 25 \end{array}$$

$$\begin{array}{r} \text{c)} \quad 31 \\ \quad 12 \\ \hline + 49 \end{array}$$

$$\begin{array}{r} \text{d)} \quad 23 \\ \quad 27 \\ \hline + 84 \end{array}$$

e)	$\begin{array}{r} 41 \\ 52 \\ + 65 \\ \hline \end{array}$	f)	$\begin{array}{r} 63 \\ 74 \\ + 21 \\ \hline \end{array}$	g)	$\begin{array}{r} 47 \\ 18 \\ + 55 \\ \hline \end{array}$	h)	$\begin{array}{r} 12 \\ 24 \\ + 89 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

i)	$\begin{array}{r} 73 \\ 21 \\ + 37 \\ \hline \end{array}$	j)	$\begin{array}{r} 25 \\ 60 \\ + 47 \\ \hline \end{array}$	k)	$\begin{array}{r} 53 \\ 60 \\ + 71 \\ \hline \end{array}$	l)	$\begin{array}{r} 14 \\ 24 \\ + 51 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

m)	$\begin{array}{r} 56 \\ 23 \\ + 67 \\ \hline \end{array}$	n)	$\begin{array}{r} 78 \\ 45 \\ + 89 \\ \hline \end{array}$	o)	$\begin{array}{r} 22 \\ 52 \\ + 64 \\ \hline \end{array}$	p)	$\begin{array}{r} 35 \\ 11 \\ + 75 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

q)	$\begin{array}{r} 34 \\ 32 \\ + 85 \\ \hline \end{array}$	r)	$\begin{array}{r} 27 \\ 51 \\ + 96 \\ \hline \end{array}$	s)	$\begin{array}{r} 25 \\ 46 \\ + 43 \\ \hline \end{array}$	t)	$\begin{array}{r} 36 \\ 47 \\ + 52 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

u)	$\begin{array}{r} 53 \\ 67 \\ + 81 \\ \hline \end{array}$	v)	$\begin{array}{r} 41 \\ 59 \\ + 99 \\ \hline \end{array}$	w)	$\begin{array}{r} 31 \\ 83 \\ + 27 \\ \hline \end{array}$	x)	$\begin{array}{r} 76 \\ 62 \\ + 25 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

Answers to Exercise Six

- | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|
| a) 200 | b) 80 | c) 92 | d) 134 | e) 158 | f) 158 | g) 120 |
| h) 125 | i) 131 | j) 132 | k) 184 | l) 89 | m) 146 | n) 212 |
| o) 138 | p) 121 | q) 151 | r) 174 | s) 114 | t) 135 | u) 201 |
| v) 199 | w) 141 | x) 163 | | | | |

Use the same method for “carrying” when you add the columns of tens, hundreds, thousands, ten thousands, and so on. Look at these examples:

Example A:	374	$\begin{array}{r} 1\ 1 \\ 374 \\ + 438 \\ \hline \end{array}$
	$\begin{array}{r} 374 \\ + 438 \\ \hline \end{array}$	$\begin{array}{r} 374 \\ + 438 \\ \hline 812 \end{array}$

Step 1: Add the ones.

$$4 \text{ ones} + 8 \text{ ones} = \mathbf{12 \text{ ones}} = 1 \text{ ten and } 2 \text{ ones}$$

Write the **2** ones in the sum. Carry the 1 ten to the tens column.

Step 2: Add the tens.

$$7 + 3 + 1 \text{ ten you carried} = \mathbf{11 \text{ tens}} = 1 \text{ hundred and } 1 \text{ ten}$$

Write the **1** ten. Carry the 1 hundred to the hundreds column.

Step 3: Add the hundreds.

$$3 + 4 + 1 \text{ hundred you carried} = \mathbf{8 \text{ hundreds}}. \text{ Write } \mathbf{8}.$$

Example B:	4 974	$\begin{array}{r} 1\ 2\ 2 \\ 4\ 974 \\ 2\ 385 \\ + 6\ 890 \\ \hline \end{array}$
	$\begin{array}{r} 4\ 974 \\ 2\ 385 \\ + 6\ 890 \\ \hline \end{array}$	$\begin{array}{r} 4\ 974 \\ 2\ 385 \\ + 6\ 890 \\ \hline 14\ 249 \end{array}$

Step 1: Add the ones. **9 ones** (write **9 ones** in the sum)

Step 2: Add the tens. **24 tens** = 2 hundreds + 4 tens (write **4** tens)

Carry the 2 hundreds to the hundreds column.

Step 3: Add the hundreds and the 2 hundreds you carried.

$$\mathbf{22 \text{ hundreds}} = 2 \text{ thousands} + 2 \text{ hundreds (write } \mathbf{2} \text{ hundreds)}$$

Step 4: Add the thousands and the 2 thousands you carried.

$$\mathbf{14 \text{ thousands}} = 1 \text{ ten thousand} + 4 \text{ thousands}$$

Write **14** thousands in the sum.

Example C:	246 476	$\begin{array}{r} \\ 246\,476 \\ + 873\,706 \\ \hline 1\,120\,182 \end{array}$
	<u>+ 873 706</u>	<u>+ 873 706</u>
		1 120 182

Step 1: Add the ones. **12 ones** = 1 ten + 2 ones
Write **2** ones in the sum, carry the 1 ten over.

Step 2: Add the tens. **8 tens**
Write **8** tens in the sum, nothing to carry.

Step 3: Add the hundreds. **11 hundreds** = 1 thousand + 1 hundred
Write **1** hundred in the sum, carry the 1 thousand.

Step 4: Add the thousands. **10 thousands** = 1 ten thousand + 0 thousands
Be sure to write the **0** to hold the thousands place in the sum.
Carry the 1 ten thousand.

Step 5: Add the ten thousands.
12 ten thousands = 1 hundred thousand + 2 ten thousands
Write the **2** ten thousands in the sum, carry the 1 hundred thousand.

Step 6: Add the hundred thousands.
11 hundred thousands = 1 million + 1 hundred thousand
Write **1** million and the **1** hundred thousand in the sum.

And to read the answer, say,
“one million, one hundred twenty thousand, one hundred eight-two”.

Exercise Seven

Find the sums. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a) } 231 \\ + 452 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b) } 520 \\ + 239 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c) } 481 \\ + 306 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d) } 306 \\ + 83 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e) } 5\,237 \\ + 2\,549 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f) } 2\,846 \\ + 1\,437 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g) } 5\,128 \\ + 4\,907 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h) } 6\,005 \\ + 239 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i) } 8\,106 \\ + 3\,923 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j) } 5\,028 \\ + 4\,907 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k) } 6\,005 \\ + 273 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l) } 2\,648 \\ + 1\,838 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m) } 5\,837 \\ + 2\,569 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n) } 2\,846 \\ + 1\,457 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o) } 3\,517 \\ + 4\,296 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p) } 9\,020 \\ + 684 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q) } 2\,648 \\ + 1\,238 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r) } 5\,237 \\ + 6\,968 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 2\,346 \\ + 9\,879 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 5\,028 \\ + 4\,986 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 6\,005 \\ + 3\,997 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 2\,648 \\ + 8\,797 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 26\,072 \\ + 47\,958 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 2\,648 \\ + 1\,638 \\ \hline \end{array}$$

$$\begin{array}{r} \text{y)} \quad 368 \\ \quad 294 \\ + 489 \\ \hline \end{array}$$

$$\begin{array}{r} \text{z)} \quad 436 \\ \quad 398 \\ + 177 \\ \hline \end{array}$$

$$\begin{array}{r} \text{aa)} \quad 728 \\ \quad 365 \\ + 428 \\ \hline \end{array}$$

$$\begin{array}{r} \text{bb)} \quad 2\,238 \\ \quad 4\,595 \\ + 5\,479 \\ \hline \end{array}$$

$$\begin{array}{r} \text{cc)} \quad 33\,626 \\ \quad 62\,598 \\ + 1\,188 \\ \hline \end{array}$$

$$\begin{array}{r} \text{dd)} \quad 42\,163 \\ \quad 30\,820 \\ + 21\,911 \\ \hline \end{array}$$

Answers to Exercise Seven

a) 683	b) 759	c) 787	d) 389	e) 7 786	f) 4 283
g) 10 035	h) 6 244	i) 12 029	j) 9 935	k) 6 278	l) 4 486
m) 8 406	n) 4 303	o) 7 813	p) 9 704	q) 3 886	r) 12 205
s) 12 225	t) 10 014	u) 10 002	v) 11 445	w) 74 030	x) 4 286
y) 1 151	z) 1 011	aa) 1 521	bb) 12 312	cc) 97 412	dd) 94 894

If you are having any problems with this work, ask your instructor to check your method of addition with carrying before you go any further.

If you feel that you need more practice, your instructor will give you more addition questions to do.

Adding Across

If an addition question is written with the numbers side by side, rewrite the question in columns. Put the ones under the ones, the tens under the tens, the hundreds under the hundreds, and so on.

Example A: $263 + 25 =$ _____

$$\begin{array}{r} 263 \\ + 25 \\ \hline 288 \end{array}$$

Example B: $316 + 9\,560 =$ _____

$$\begin{array}{r} 316 \\ + 9\,560 \\ \hline 9\,876 \end{array}$$

Exercise Eight

Rewrite each question in columns. Be careful to write ones under ones, tens under tens, hundreds under hundreds, and so on. Check your work using the answer key at the end of the exercise.

a) $476 + 392 + 483 =$ _____

b) $986 + 483 + 524 =$ _____

c) $3\,714 + 3\,189 + 4\,582 =$ _____

d) $466 + 5\,973 + 821 + 83 =$ _____

e) $697 + 7\,639 + 27 + 5\,396 =$ _____

f) $1\,436 + 844 + 16\,009 = \underline{\hspace{2cm}}$

g) $242\,100 + 62\,418 + 32 + 528\,002 = \underline{\hspace{2cm}}$

h) $279\,661 + 475 + 49\,264 = \underline{\hspace{2cm}}$

Answers to Exercise Eight

a) 1 351

b) 1 993

c) 11 485

d) 7 343

e) 13 759

f) 18 289

g) 832 552

h) 329 400

Topic B: Self-Test

Mark /15

Aim 12/15

A. Find the sums. Be sure to check your answers.

12 marks

a)
$$\begin{array}{r} 85 \\ + 57 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 94 \\ + 48 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 982 \\ + 743 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 829 \\ + 303 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 7\,834 \\ + 2\,169 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 5\,976 \\ + 2\,081 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 46\,940 \\ + 86\,502 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 41\,801 \\ + 39\,199 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 3\,742 \\ 4\,108 \\ + 7\,336 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 12\,350 \\ 17\,629 \\ + 23\,244 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 352\,641 \\ 432\,345 \\ + 720\,250 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 18\,060 \\ 62\,549 \\ 1\,375 \\ + 399 \\ \hline \end{array}$$

B. Add these numbers.

3 marks

a) $74 + 32 + 67 + 85 =$

b) $721 + 8\,462 + 968 + 99 =$

c) $389 + 2\,517 + 2 =$

Answers to Topic B Self-Test

A.

- | | | | | |
|--------------|------------|-----------|-----------|-----------|
| a) 142 | b) 142 | c) 1 725 | d) 1 132 | e) 10 003 |
| f) 8057 | g) 133 442 | h) 81 000 | i) 15 186 | j) 53 223 |
| k) 1 505 236 | l) 82 383 | | | |

B.

- | | | |
|--------|-----------|----------|
| a) 258 | b) 10 250 | c) 2 908 |
|--------|-----------|----------|

Topic C: Estimating Answers in Addition

You have learned how to round numbers. Now you can use that skill to quickly find an **approximate** sum.

Often an estimate is all you need. If you are going away for the weekend, you have to think about how much money you will need.

The hotel is about \$60, meals about \$80, gas about \$40, and entertainment about \$100. You will take $\$60 + \$80 + \$40 + \$100 = \$280$

When you are solving word problems or working with a calculator, **you should estimate your answer first so you can tell if your answer is sensible.**

In these examples, **estimate** the answer. Round each number **BEFORE** you add.

Example A:	53	rounds to	50
	69	rounds to	70
	22	rounds to	20
	<u>+ 88</u>	rounds to	<u>+ 90</u>
			230

Example B:	349	rounds to	300
	<u>+ 682</u>	rounds to	<u>+ 700</u>
			1 000

Example C:	43 928	rounds to	40 000
	29 785	rounds to	30 000
	88 319	rounds to	90 000
	<u>+ 243 928</u>	rounds to	<u>+ 240 000</u>
			400 000

If you are estimating an answer, usually you **estimate to the largest place value that you can.** Your estimate will give you what is sometimes called a **ballpark** figure. You will have an **approximate answer.**

Exercise One

Estimate the sums. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 973 \\ \quad 496 \\ \quad \underline{+ 382} \\ \hline \end{array} \quad \begin{array}{l} \approx 1\,000 \\ \approx 500 \\ \approx \underline{+ 400} \\ 1\,900 \end{array}$$

$$\begin{array}{r} \text{b)} \quad 519 \\ \quad 439 \\ \quad \underline{+ 382} \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 1\,234 \\ \quad 4\,567 \\ \quad \underline{+ 7\,890} \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 3\,519 \\ \quad 4\,003 \\ \quad \underline{+ 3\,832} \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 2\,727 \\ \quad 2\,329 \\ \quad \underline{+ 9\,818} \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 4\,113 \\ \quad 1\,590 \\ \quad \underline{+ 2\,671} \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 38\,985 \\ \quad 43\,691 \\ \quad \underline{+ 8\,336} \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 42\,163 \\ \quad 30\,820 \\ \quad 21\,911 \\ \quad \underline{+ 60\,422} \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 21\,472 \\ \quad 46\,371 \\ \quad 98\,393 \\ \quad + 82\,218 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 30\,706 \\ \quad 29\,115 \\ \quad 40\,082 \\ \quad + 31\,621 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 431\,391 \\ \quad 554\,423 \\ \quad 913\,174 \\ \quad + 282\,826 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 171\,234 \\ \quad 102\,085 \\ \quad 460\,892 \\ \quad + 542\,329 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 726\,712 \\ \quad 463\,314 \\ \quad 543\,273 \\ \quad + 429\,179 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 52\,163 \\ \quad 4\,218 \\ \quad 316 \\ \quad + 62\,190 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 4\,216 \\ \quad 53\,008 \\ \quad 31\,621 \\ \quad + 2\,165 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 321 \\ \quad 2\,143 \\ \quad 52\,140 \\ \quad + 1\,230 \\ \hline \end{array}$$

$$\begin{array}{r}
 \text{q)} \quad 4\,766\,883 \\
 \quad 1\,549\,008 \\
 \quad 6\,391\,458 \\
 \quad + 2\,190\,753 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{r)} \quad 2\,185\,283 \\
 \quad 8\,018\,350 \\
 \quad 3\,705\,060 \\
 \quad + 2\,896\,375 \\
 \hline
 \end{array}$$

Answers to Exercise One

- a) $1\,000 + 500 + 400 = 1\,900$
- b) $500 + 400 + 400 = 1\,300$
- c) $1\,000 + 5\,000 + 8\,000 = 14\,000$
- d) $4\,000 + 4\,000 + 4\,000 = 12\,000$
- e) $3\,000 + 2\,000 + 10\,000 = 15\,000$
- f) $4\,000 + 2\,000 + 3\,000 = 9\,000$
- g) $39\,000 + 44\,000 + 8\,000 = 91\,000$
- h) $40\,000 + 30\,000 + 20\,000 + 60\,000 = 150\,000$
- i) $20\,000 + 50\,000 + 100\,000 + 80\,000 = 250\,000$
- j) $30\,000 + 30\,000 + 40\,000 + 30\,000 = 130\,000$
- k) $400\,000 + 600\,000 + 900\,000 + 300\,000 = 2\,200\,000$
- l) $200\,000 + 100\,000 + 500\,000 + 500\,000 = 1\,300\,000$
- m) $700\,000 + 500\,000 + 500\,000 + 400\,000 = 2\,100\,000$
- n) $52\,200 + 4\,300 + 300 + 62\,200 = 118\,900$
- o) $4\,000 + 53\,000 + 32\,000 + 2\,000 = 91\,000$
- p) $300 + 2\,100 + 52\,100 + 1\,200 = 55\,700$
- q) $5\,000\,000 + 2\,000\,000 + 6\,000\,000 + 2\,000\,000 = 15\,000\,000$
- r) $2\,000\,000 + 8\,000\,000 + 4\,000\,000 + 3\,000\,000 = 17\,000\,000$

Estimating Answers in Addition Word Problems

When you are solving word problems, **an estimate tells you if your answer is sensible**. You can use your estimate to help you check your answers. If your answer and the estimate are not close, then you know that you should add your numbers again.

Exercise Two

Estimate the following answers. Be sure to round to the largest place value possible before adding. Remember to circle the information and underline what is being asked. Check your work using the answer key at the end of the exercise.

Example:

During one month, Chaska spends 11 432 minutes sleeping and 5 812 minutes eating. Estimate how much time he spends sleeping and eating.

During one month, Chaska spends 11 432 minutes sleeping and 5 812 minutes eating. Estimate how much time he spends sleeping and eating?

11 432	Estimate:	11 000
<u>+ 5 812</u>		<u>+ 6 000</u>
		17 000

Chaska spent about 17 000 minutes sleeping and eating.

- a) During October, Amul drove 674 kilometres, 493 kilometres, 384 kilometres and 914 kilometres. Estimate the total kilometres Amul drove.

- b) The number of passengers using the ABE Taxi Company for the past three weeks were 3 205 passengers, 3 542 passengers and 2 821 passengers. Estimate the number of passengers that used the ABE Taxi Company.
- c) In 2008, the top three winning teams in the NHL were the Montreal Canadiens winning 2 980 games, the Boston Bruins winning 2 669 games and the Toronto Maple Leafs winning 2 535 games. Estimate the total number of games won by these three teams.
- d) The three deepest lakes in the world are Baikal Lake which is 1 741 metres, Tanganyika Lake which is 1 471 metres and the Caspian Sea which 1 025 metres. Estimate the total depth of the three lakes.

- e) The Wang family drove 13 527 kilometres. The Li family drove 15 439 kilometres. The Zhang family drove 17 024 kilometres. Estimate the total kilometres driven by the three families.
- f) Indonesia has 884 950 square kilometres of forest. Peru has 687 420 square kilometres of forest. India has 677 010 square kilometres of forest. Estimate the total square kilometres of forest for these three countries.
- g) Four astronauts have logged the following times in actual space travel: 4 216 minutes, 13 628 minutes, 3 153 minutes and 22 117 minutes. Estimate the total number of minutes logged by these four astronauts.

- h) In 1910, the population of London, England was 6 580 616. The population of Paris, France was 2 763 393. The population of Tokyo, Japan was 2 186 079. Estimate the total population of the three countries.

Answers to Exercise Two

- a) $700 + 500 + 400 + 900 = 2\,500$ kilometres
b) $3\,000 + 4\,000 + 3\,000 = 10\,000$ passengers
c) $3\,000 + 3\,000 + 3\,000 = 9\,000$ games
d) $2\,000 + 1\,000 + 1\,000 = 4\,000$ metres
e) $10\,000 + 20\,000 + 20\,000 = 50\,000$ kilometres
f) $900\,000 + 700\,000 + 700\,000 = 2\,300\,000$ square kilometres
g) $4\,000 + 14\,000 + 3\,000 + 22\,000 = 43\,000$ minutes
h) $7\,000\,000 + 3\,000\,000 + 2\,000\,000 = 12\,000\,000$ people

A. Estimate the sums. Show your work.**9 marks**

a)

$$\begin{array}{r} 7\,964 \\ 971 \\ 6\,888 \\ + 2\,021 \\ \hline \end{array}$$

b)

$$\begin{array}{r} 5\,365 \\ 5\,100 \\ 9\,982 \\ + 7\,752 \\ \hline \end{array}$$

c)

$$\begin{array}{r} 5\,211 \\ 1\,982 \\ 3\,371 \\ + 2\,801 \\ \hline \end{array}$$

d)

$$\begin{array}{r} 2\,395 \\ 2\,709 \\ 18\,060 \\ + 932\,335 \\ \hline \end{array}$$

e)

$$\begin{array}{r} 2\,364 \\ 62\,182 \\ 549\,272 \\ + 6\,395 \\ \hline \end{array}$$

f)

$$\begin{array}{r} 75\,536 \\ 31\,807 \\ 337\,427 \\ + 7\,912 \\ \hline \end{array}$$

g)

$$\begin{array}{r} 898\,402 \\ 465\,766 \\ 558\,485 \\ + 324\,715 \\ \hline \end{array}$$

h)

$$\begin{array}{r} 6\,182\,390 \\ 2\,763\,393 \\ 1\,326\,879 \\ + 2\,743\,912 \\ \hline \end{array}$$

i)

$$\begin{array}{r} 1\ 226\ 590 \\ 687\ 029 \\ 533\ 905 \\ + \underline{1\ 359\ 254} \end{array}$$

B. Estimate each of the following word problems.

6 marks

Be sure to include the unit of measure in your answer. (2 marks each)

Be sure to circle information and underline what is being asked.

a) Yuan counted 854 old books and 519 new books. Estimate how many books there were altogether.

b) A magazine has 34 783 subscribers. Last year the magazine had 26 876 subscribers. Estimate how many subscribers in total.

- c) The area of Canada is 9 984 670 square kilometres. The area of the United States is 9 629 091 square kilometres. The area of Mexico is 1 964 375 square kilometres. Estimate the total area of the three countries.

Answers to Topic B Self-Test

A.

- a) 18 000 b) 20 000 c) 13 000 d) 955 000 e) 619 000
f) 553 000 g) 2 300 000 h) 13 000 000 i) 3 800 000

B.

- a) 1 400 books b) 60 000 subscribers c) 23 000 000 square kilometres

Unit 2 Review - Addition

You will now practice all the skills you learned in Unit 2. Check your work using the answer key at the end of the review

A. Find the sums.

a)
$$\begin{array}{r} 23 \\ + 35 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 47 \\ + 52 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 62 \\ + 36 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 51 \\ + 24 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 64 \\ + 14 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 53 \\ + 32 \\ \hline \end{array}$$

B. Find the sums.

a)
$$\begin{array}{r} 23 \\ 34 \\ + 42 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 42 \\ 35 \\ + 70 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 41 \\ 58 \\ + 20 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 51 \\ 43 \\ + 70 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 22 \\ 46 \\ + 31 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 63 \\ 24 \\ + 81 \\ \hline \end{array}$$

C. Find the sums.

a)
$$\begin{array}{r} 518 \\ + 470 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 410 \\ + 316 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 820 \\ + 149 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 631 \\ + 235 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 240 \\ + 523 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 723 \\ + 126 \\ \hline \end{array}$$

D. Find the sums.

a)
$$\begin{array}{r} 453 \\ 216 \\ + 320 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 231 \\ 425 \\ + 313 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 212 \\ 345 \\ + 831 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 726 \\ 130 \\ + 443 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 542 \\ 315 \\ + 641 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 314 \\ 245 \\ + 630 \\ \hline \end{array}$$

E. Find the sums.

a)
$$\begin{array}{r} 3\ 168 \\ + 3\ 220 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 3\ 782 \\ + 4\ 217 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 7\ 521 \\ + 3\ 167 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 52\ 163 \\ + 72\ 835 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 54\ 373 \\ + 54\ 625 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 83\ 245 \\ + 13\ 450 \\ \hline \end{array}$$

F. Find the sums.

a) $45 + 104 =$

b) $523 + 364 =$

c) $5\,231 + 346 =$

d) $4\,661 + 2\,138 =$

e) $42 + 707 + 350 =$

f) $63\,613 + 45\,165 =$

g) $22\,514 + 43\,262 + 21\,102 =$

h) $72\,510 + 4\,127 + 13\,041 =$

G. Find the sums.

a)
$$\begin{array}{r} 96 \\ + 58 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 87 \\ + 57 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 35 \\ + 89 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 48 \\ + 63 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 54 \\ + 98 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 37 \\ + 65 \\ \hline \end{array}$$

H. Find the sums.

a)
$$\begin{array}{r} 27 \\ 18 \\ + 35 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 52 \\ 16 \\ + 79 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 58 \\ 37 \\ + 29 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 42 \\ 59 \\ + 26 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 36 \\ 84 \\ + 57 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 21 \\ 54 \\ + 36 \\ \hline \end{array}$$

I. Find the sums.

$$\begin{array}{r} \text{a)} \quad 527 \\ + 319 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 382 \\ + 476 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 3\,782 \\ + 4\,561 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 6\,789 \\ + 4\,567 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 83\,245 \\ + 13\,876 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 52\,368 \\ + 29\,240 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 683 \\ 194 \\ + 276 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 483 \\ 629 \\ + 753 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 4\,216 \\ 3\,807 \\ + 4\,498 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 11\,615 \\ 12\,573 \\ + 76\,125 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 321\,456 \\ 523\,214 \\ + 212\,304 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 12\,421 \\ 6\,815 \\ + 42\,916 \\ \hline \end{array}$$

J. Find the sums.

$$\text{a)} \quad 234 + 357 + 526 =$$

$$\text{b)} \quad 435 + 16 + 127 =$$

c) $4\,118 + 2\,671 + 1\,590 =$

d) $67\,543 + 17\,069 =$

e) $4\,235 + 6\,815 + 42\,916 =$

f) $231\,262 + 64\,221 + 7\,143 =$

K. Estimate the sums.

a)
$$\begin{array}{r} 217 \\ 316 \\ + 142 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 3\,317 \\ 2\,154 \\ + 1\,212 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 21\,016 \\ 14\,527 \\ + 51\,202 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 31\,945 \\ 12\,214 \\ + 3\,142 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 41\,730 \\ 2\,151 \\ 33\,225 \\ + 14\,659 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 2\,173\,317 \\ 3\,621\,154 \\ + 1\,421\,212 \\ \hline \end{array}$$

L. Estimate the following answers. Be sure to round to the largest place value possible before adding. Remember to circle the information and underline what is being asked.

a) The Plumbers' Union has 456 members. The Carpenters' Union has 875 members. The Electricians' Union has 1 394 members. Estimate how many members these three unions have.

b) Last year Seung shipped 42 169 orders from his warehouse. So far this year, Seung has shipped 5 837 orders. Estimate the total number of orders sent.

c) Avani has driven 42 576 kilometres, 38 342 kilometres and 14 208 kilometres in the last three years. Estimate how many kilometres Avani has driven in the last three years.

Answers to Unit 2 Review

A.

- a) 58 b) 99 c) 98 d) 75 e) 78 f) 85

B.

- a) 99 b) 147 c) 119 d) 164 e) 99 f) 168

C.

- a) 988 b) 726 c) 969 d) 866 e) 763 f) 849

D.

- a) 989 b) 969 c) 1 388 d) 1 299 e) 1 498 f) 1 189

E.

- a) 6 388 b) 7 999 c) 10 688 d) 124 998 e) 108 998
f) 96 695

F.

- a) 149 b) 887 c) 5 577 d) 6 799 e) 1 099
f) 108 778 g) 86 878 h) 89 678

G.

- a) 154 b) 144 c) 124 d) 111 e) 152 f) 102

H.

- a) 80 b) 147 c) 124 d) 127 e) 177 f) 111

I.

- a) 846 b) 858 c) 8 343 d) 11 356 e) 97 121
f) 81 608 g) 1 153 h) 1 865 i) 12 521 j) 100 313
k) 1 056 974 l) 62 152

J.

- a) 1 117 b) 578 c) 8 379 d) 84 612 e) 53 966 f) 302 626

K.

- a) $200 + 300 + 100 = 600$ b) $3\,000 + 2\,000 + 1\,000 = 6\,000$
c) $20\,000 + 10\,000 + 50\,000 = 80\,000$ d) $32\,000 + 12\,000 + 3\,000 = 47\,000$
e) $42\,000 + 2\,000 + 33\,000 + 15\,000 = 92\,000$
f) $2\,000\,000 + 4\,000\,000 + 1\,000\,000 = 7\,000\,000$

L.

- a) $500 + 900 + 1\,400 = 2\,800$ members b) $42\,000 + 6\,000 = 48\,000$ orders
c) $40\,000 + 40\,000 + 10\,000 = 90\,000$ kilometres

CONGRATULATIONS!!

Now you have finished Unit 2.

TEST TIME!

Ask your instructor for the Practice Test for this unit.

Once you've done the practice test,
you need to do the unit 2 test.

Again, ask your instructor for this.

Good luck!

Unit 3

Subtraction

$$\begin{array}{r} \text{e)} \quad 17 \\ \underline{-9} \end{array}$$

$$\begin{array}{r} \text{f)} \quad 2 \\ \underline{-1} \end{array}$$

$$\begin{array}{r} \text{g)} \quad 11 \\ \underline{-9} \end{array}$$

$$\begin{array}{r} \text{h)} \quad 7 \\ \underline{-7} \end{array}$$

$$\begin{array}{r} \text{i)} \quad 14 \\ \underline{-6} \end{array}$$

$$\begin{array}{r} \text{j)} \quad 16 \\ \underline{-9} \end{array}$$

$$\begin{array}{r} \text{k)} \quad 9 \\ \underline{-3} \end{array}$$

$$\begin{array}{r} \text{l)} \quad 8 \\ \underline{-1} \end{array}$$

$$\begin{array}{r} \text{m)} \quad 9 \\ \underline{-0} \end{array}$$

$$\begin{array}{r} \text{n)} \quad 14 \\ \underline{-8} \end{array}$$

$$\begin{array}{r} \text{o)} \quad 10 \\ \underline{-5} \end{array}$$

$$\begin{array}{r} \text{p)} \quad 15 \\ \underline{-8} \end{array}$$

$$\begin{array}{r} \text{q)} \quad 12 \\ \underline{-9} \end{array}$$

$$\begin{array}{r} \text{r)} \quad 13 \\ \underline{-5} \end{array}$$

$$\begin{array}{r} \text{s)} \quad 6 \\ \underline{-5} \end{array}$$

$$\begin{array}{r} \text{t)} \quad 5 \\ \underline{-0} \end{array}$$

$$\begin{array}{r} \text{u)} \quad 13 \\ \underline{-9} \end{array}$$

$$\begin{array}{r} \text{v)} \quad 8 \\ \underline{-4} \end{array}$$

$$\begin{array}{r} \text{w)} \quad 10 \\ \underline{-0} \end{array}$$

$$\begin{array}{r} \text{x)} \quad 7 \\ \underline{-3} \end{array}$$

$$\begin{array}{r} \text{y)} \quad 11 \\ \underline{-8} \end{array}$$

$$\begin{array}{r} \text{z)} \quad 9 \\ \underline{-9} \end{array}$$

$$\begin{array}{r} \text{aa)} \quad 6 \\ \underline{-1} \end{array}$$

$$\begin{array}{r} \text{bb)} \quad 4 \\ \underline{-4} \end{array}$$

$$\begin{array}{r} \text{cc)} \quad 13 \\ \underline{-7} \end{array}$$

$$\begin{array}{r} \text{dd)} \quad 3 \\ \underline{-2} \end{array}$$

$$\begin{array}{r} \text{ee)} \quad 11 \\ \underline{-4} \end{array}$$

$$\begin{array}{r} \text{ff)} \quad 5 \\ \underline{-4} \end{array}$$

$$\begin{array}{r} \text{gg)} \quad 11 \\ \underline{-6} \end{array}$$

$$\begin{array}{r} \text{hh)} \quad 9 \\ \underline{-5} \end{array}$$

$$\begin{array}{r} \text{ii)} \quad 6 \\ \underline{-2} \end{array}$$

$$\begin{array}{r} \text{jj)} \quad 3 \\ \underline{-3} \end{array}$$

$$\begin{array}{r} \text{kk)} \quad 4 \\ \underline{-1} \end{array}$$

$$\begin{array}{r} \text{ll)} \quad 7 \\ \underline{-6} \end{array}$$

$$\begin{array}{r} \text{mm)} \quad 10 \\ \underline{-4} \end{array}$$

$$\begin{array}{r} \text{nn)} \quad 12 \\ \underline{-7} \end{array}$$

$$\begin{array}{r} \text{oo)} \quad 15 \\ \underline{-6} \end{array}$$

$$\begin{array}{r} \text{pp)} \quad 10 \\ \underline{-8} \end{array}$$

$$\begin{array}{r} \text{qq)} \quad 9 \\ \underline{-7} \end{array}$$

$$\begin{array}{r} \text{rr)} \quad 8 \\ \underline{-8} \end{array}$$

Answers to Exercise One

a) 3	b) 8	c) 8	d) 2	e) 8	f) 1	g) 2
h) 0	i) 8	j) 7	k) 6	l) 7	m) 9	n) 6
o) 5	p) 7	q) 3	r) 8	s) 1	t) 5	u) 4
v) 4	w) 10	x) 4	y) 3	z) 0	aa) 5	bb) 0
cc) 6	dd) 1	ee) 7	ff) 1	gg) 5	hh) 4	ii) 4
jj) 0	kk) 3	ll) 1	mm) 6	nn) 5	oo) 9	pp) 2
qq) 2	rr) 0					

Note: There is no self-test for this topic.

Topic B: Subtraction of Larger Numbers

You can find the difference between two large numbers using the subtraction facts you have been practicing. Always **take away** or subtract the **number after the minus sign**.

Use these steps to complete each subtraction question.

Step 1: Subtract the ones from the ones.

Step 2: Subtract the tens from the tens.

Step 3: Subtract the hundreds from the hundreds.

Step 4: Subtract the thousands from the thousands.

Step 5: Subtract the ten thousands from the ten thousands and so on.

Example A:

$$\begin{array}{r} 57 \\ - 26 \\ \hline \end{array}$$
$$\begin{array}{r} 57 \\ - 26 \\ \hline 1 \end{array}$$
$$\begin{array}{r} 57 \\ - 26 \\ \hline 31 \end{array}$$

Step 1: Subtract the ones from the ones. $7 \text{ ones} - 6 \text{ ones} = 1 \text{ one}$
Write the answer in line with the ones in the question.

Step 2: Subtract the tens from the tens. $5 \text{ tens} - 2 \text{ tens} = 3 \text{ tens}$

The **difference** between 57 and 26 is **31**.

Exercise One

Find the differences. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 36 \\ - 13 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 72 \\ - 42 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 48 \\ - 22 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 55 \\ - 31 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 93 \\ -40 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 76 \\ -71 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 95 \\ -62 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 39 \\ -26 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 64 \\ -21 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 85 \\ -64 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 98 \\ -73 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 76 \\ -64 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 86 \\ -50 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 95 \\ -35 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 28 \\ -17 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 69 \\ -52 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 84 \\ -40 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 74 \\ -53 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 97 \\ -83 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 89 \\ -80 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 79 \\ -29 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 89 \\ -80 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 67 \\ -61 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 48 \\ -40 \\ \hline \end{array}$$

Answers to Exercise One

- | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|
| a) 23 | b) 30 | c) 26 | d) 24 | e) 53 | f) 5 | g) 33 |
| h) 13 | i) 43 | j) 21 | k) 25 | l) 12 | m) 36 | n) 60 |
| o) 11 | p) 17 | q) 44 | r) 21 | s) 14 | t) 9 | u) 50 |
| v) 9 | w) 6 | x) 8 | | | | |

Checking Subtraction

You can check your subtraction. Add the **answer** (the **difference**) to the number you took away (the second number). If your subtracting was correct, the result of the adding will be the number you started with (the top number) in the subtraction question.

Example A:

$$\begin{array}{r} 928 \\ -416 \\ \hline 512 \end{array} \quad \text{difference}$$

To check, add 512 to 416.

$$\begin{array}{r} 512 \\ +416 \\ \hline 928 \end{array} \quad \checkmark$$

Exercise Two

Find the differences. Check your work by adding and then by using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 87 \\ -36 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 29 \\ -21 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 48 \\ -40 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 99 \\ -63 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 75 \\ -45 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 73 \\ -20 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 92 \\ -21 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 58 \\ -27 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 84 \\ -23 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 69 \\ -38 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 45 \\ -23 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 49 \\ -19 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 59 \\ -14 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 87 \\ -63 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 88 \\ -15 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 56 \\ -44 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 96 \\ -75 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 37 \\ -17 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 70 \\ -50 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 38 \\ -24 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 31 \\ -10 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 27 \\ -12 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 74 \\ -53 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 45 \\ -20 \\ \hline \end{array}$$

Answers to Exercise Two

a) 51	b) 8	c) 8	d) 36	e) 30	f) 53	g) 71
h) 31	i) 61	j) 31	k) 22	l) 30	m) 45	n) 24
o) 73	p) 12	q) 21	r) 20	s) 20	t) 14	u) 21
v) 15	w) 21	x) 25				

Exercise Three

Find the differences. Check your work by adding and then by using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 46 \\ -23 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 65 \\ -42 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 45 \\ -13 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 53 \\ -20 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 34 \\ -21 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 48 \\ -32 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 56 \\ -13 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 26 \\ -15 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 49 \\ -22 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 58 \\ -27 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 95 \\ -71 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 37 \\ -14 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 69 \\ -19 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 86 \\ -71 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 99 \\ -50 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 89 \\ -55 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 97 \\ -13 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 87 \\ -25 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 48 \\ -26 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 36 \\ -11 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 46 \\ -12 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 86 \\ -43 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 59 \\ -32 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 84 \\ -14 \\ \hline \end{array}$$

Answers to Exercise Three

a) 23	b) 23	c) 32	d) 33	e) 13	f) 16	g) 43
h) 11	i) 27	j) 31	k) 24	l) 23	m) 50	n) 15
o) 49	p) 34	q) 84	r) 62	s) 22	t) 25	u) 34
v) 43	w) 27	x) 70				

Exercise Four

Find the differences. Check your work by adding and then by using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 23 \\ -11 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 53 \\ -21 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 32 \\ -20 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 77 \\ -32 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 31 \\ -21 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 38 \\ -15 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 33 \\ -13 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 92 \\ -30 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 94 \\ -23 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 54 \\ -42 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 74 \\ -33 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 88 \\ -72 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 46 \\ -36 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 75 \\ -41 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 85 \\ -12 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 56 \\ -45 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 64 \\ -22 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 27 \\ -15 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 76 \\ -53 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 63 \\ -41 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 52 \\ -41 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 57 \\ -44 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 69 \\ -46 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 77 \\ -42 \\ \hline \end{array}$$

Answers to Exercise Four

a) 12	b) 32	c) 12	d) 45	e) 10	f) 23	g) 20
h) 62	i) 71	j) 12	k) 41	l) 16	m) 10	n) 34
o) 73	p) 11	q) 42	r) 12	s) 23	t) 22	u) 11
v) 13	w) 23	x) 35				

Use these steps to complete each subtraction question:

Example B:

$$\begin{array}{r} 696 \\ - 251 \\ \hline \end{array}$$

Step 1: Subtract the ones from the ones. 6 ones $-$ 1 one $=$ 5 ones

$$\begin{array}{r} 696 \\ - 251 \\ \hline 5 \end{array}$$

Step 2: Subtract the tens from the tens. 9 tens $-$ 5 tens $=$ 4 tens

$$\begin{array}{r} 696 \\ - 251 \\ \hline 45 \end{array}$$

Step 3: Subtract the hundreds from the hundreds.

6 hundreds $-$ 2 hundreds $=$ 4 hundreds

$$\begin{array}{r} 696 \\ - 251 \\ \hline 445 \end{array}$$

The **difference** between 696 and 251 is **445**.

Exercise Five

Find the differences. Check your work using the answer key at the end of the exercise.

a)

$$\begin{array}{r} 995 \\ - 452 \\ \hline \end{array}$$

b)

$$\begin{array}{r} 877 \\ - 342 \\ \hline \end{array}$$

c)

$$\begin{array}{r} 788 \\ - 615 \\ \hline \end{array}$$

d)

$$\begin{array}{r} 987 \\ - 243 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 549 \\ - 131 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 806 \\ - 204 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 953 \\ - 603 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 569 \\ - 403 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 874 \\ - 650 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 269 \\ - 159 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 485 \\ - 203 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 381 \\ - 270 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 796 \\ - 172 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 864 \\ - 531 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 963 \\ - 810 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 957 \\ - 342 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 837 \\ - 410 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 528 \\ - 208 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 549 \\ - 120 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 627 \\ - 523 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 849 \\ - 246 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 175 \\ - 163 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 937 \\ - 224 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 875 \\ - 252 \\ \hline \end{array}$$

Answers to Exercise Five

a) 543	b) 535	c) 173	d) 744	e) 418	f) 602	g) 350
h) 166	i) 224	j) 110	k) 282	l) 111	m) 624	n) 333
o) 153	p) 615	q) 427	r) 320	s) 429	t) 104	u) 603
v) 12	w) 713	x) 623				

Exercise Six

Find the differences. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 476 \\ - 413 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 873 \\ - 560 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 589 \\ - 384 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 793 \\ - 170 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 228 \\ - 123 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 995 \\ - 452 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 896 \\ - 450 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 769 \\ - 405 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 788 \\ - 435 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 579 \\ - 234 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 958 \\ - 403 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 696 \\ - 251 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 657 \\ - 234 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 745 \\ - 412 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 967 \\ - 143 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 456 \\ - 214 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 627 \\ - 512 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 878 \\ - 425 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 357 \\ - 130 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 725 \\ - 214 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 678 \\ - 623 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 526 \\ - 116 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 724 \\ - 221 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 429 \\ - 316 \\ \hline \end{array}$$

Answers to Exercise Six

a) 63	b) 313	c) 205	d) 623	e) 105	f) 543	g) 446
h) 364	i) 353	j) 345	k) 555	l) 445	m) 423	n) 333
o) 824	p) 242	q) 115	r) 453	s) 227	t) 511	u) 55
v) 410	w) 503	x) 113				

Exercise Seven

Find the differences. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 543 \\ - 132 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 752 \\ - 150 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 328 \\ - 115 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 758 \\ - 341 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 587 \\ - 425 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 857 \\ - 143 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 545 \\ - 302 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 466 \\ - 115 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 964 \\ - 231 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 679 \\ - 424 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 757 \\ - 136 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 467 \\ - 132 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 536 \\ - 325 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 897 \\ - 287 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 979 \\ - 465 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 907 \\ - 605 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 494 \\ - 146 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 778 \\ - 635 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 573 \\ - 232 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 859 \\ - 734 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 735 \\ - 420 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 912 \\ - 811 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 966 \\ - 732 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 578 \\ - 343 \\ \hline \end{array}$$

Answers to Exercise Seven

a) 411	b) 602	c) 213	d) 417	e) 162	f) 714	g) 243
h) 351	i) 733	j) 255	k) 621	l) 335	m) 211	n) 610
o) 514	p) 302	q) 348	r) 143	s) 341	t) 125	u) 315
v) 101	w) 234	x) 235				

Exercise Eight

Find the differences. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 353 \\ -142 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 896 \\ -675 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 786 \\ -325 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 743 \\ -623 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 548 \\ -336 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 685 \\ -143 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 393 \\ -241 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 965 \\ -130 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 478 \\ -352 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 968 \\ -605 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 435 \\ -234 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 694 \\ -523 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 576 \\ -314 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 946 \\ -615 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 664 \\ -532 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 824 \\ - 513 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 768 \\ - 633 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 497 \\ - 335 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 985 \\ - 843 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 679 \\ - 436 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 598 \\ - 365 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 984 \\ - 672 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 569 \\ - 238 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 747 \\ - 636 \\ \hline \end{array}$$

Answers to Exercise Eight

a) 211	b) 221	c) 461	d) 120	e) 212	f) 542	g) 152
h) 835	i) 126	j) 363	k) 201	l) 171	m) 262	n) 331
o) 132	p) 311	q) 135	r) 162	s) 142	t) 243	u) 233
v) 312	w) 331	x) 111				

Use these steps to complete each subtraction question:

Example B:

$$\begin{array}{r} 4\ 628 \\ - 2\ 604 \\ \hline \end{array}$$

Step 1: Subtract the ones from the ones. $8\ \text{ones} - 4\ \text{ones} = 4\ \text{ones}$

$$\begin{array}{r} 4\ 628 \\ - 2\ 604 \\ \hline 4 \end{array}$$

Step 2: Subtract the tens from the tens. $2\ \text{tens} - 0\ \text{tens} = 2\ \text{tens}$

$$\begin{array}{r} 4\ 628 \\ - 2\ 604 \\ \hline 24 \end{array}$$

Step 3: Subtract the hundreds from the hundreds.

$6\ \text{hundreds} - 6\ \text{hundreds} = 0\ \text{hundreds}$

The **0** must be placed in the answer to hold the hundreds place.

$$\begin{array}{r} 4\ 628 \\ - 2\ 604 \\ \hline 024 \end{array}$$

Step 4: Subtract the thousands from the thousands.

$4\ \text{thousands} - 2\ \text{thousands} = 2\ \text{thousands}$

$$\begin{array}{r} 4\ 628 \\ - 2\ 604 \\ \hline 2\ 024 \end{array}$$

The **difference** between 4 628 and 2 604 is **2 024**.

Example C:

$$\begin{array}{r} 79\ 486 \\ - 42\ 104 \\ \hline \end{array}$$

Step 1: Subtract the ones from the ones. 6 ones $-$ 4 ones = 2 ones

$$\begin{array}{r} 79\ 486 \\ - 42\ 104 \\ \hline 2 \end{array}$$

Step 2: Subtract the tens from the tens. 8 tens $-$ 0 tens = 8 tens

$$\begin{array}{r} 79\ 486 \\ - 42\ 104 \\ \hline 82 \end{array}$$

Step 3: Subtract the hundreds from the hundreds.

4 hundreds $-$ 1 hundreds = 3 hundreds

$$\begin{array}{r} 79\ 486 \\ - 42\ 104 \\ \hline 382 \end{array}$$

Step 4: Subtract the thousands from the thousands.

9 thousands $-$ 2 thousands = 7 thousands

$$\begin{array}{r} 79\ 486 \\ - 42\ 104 \\ \hline 7\ 382 \end{array}$$

Step 5: Subtract the ten thousands from the ten thousands.

7 ten thousands $-$ 4 ten thousands = 3 ten thousands

$$\begin{array}{r} 79\ 486 \\ - 42\ 104 \\ \hline 37\ 382 \end{array}$$

The **difference** between 79 486 and 42 104 is **37 382**.

Exercise Nine

Find the differences. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 8\ 646 \\ - 542 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 7\ 295 \\ - 231 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 9\ 738 \\ - 215 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 6\ 498 \\ - 253 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 3\ 674 \\ - 2\ 503 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 3\ 219 \\ - 2\ 116 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 6\ 456 \\ - 5\ 234 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 1\ 758 \\ - 1\ 431 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 8\ 954 \\ - 2\ 151 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 8\ 975 \\ - 4\ 732 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 7\ 296 \\ - 5\ 081 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 9\ 678 \\ - 4\ 316 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 9\ 489 \\ - 2\ 079 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 7\ 638 \\ - 6\ 218 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 4\ 759 \\ - 1\ 136 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 8\ 275 \\ - 4\ 073 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 59\ 684 \\ - 2\ 123 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 36\ 937 \\ - 4\ 334 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 49\ 752 \\ - 1\ 242 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 19\ 584 \\ - 4\ 213 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 38\ 825 \\ - 10\ 623 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 76\ 824 \\ - 32\ 714 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 28\ 043 \\ - 6\ 000 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 58\ 492 \\ - 43\ 451 \\ \hline \end{array}$$

$$\begin{array}{r}
 \text{y)} \quad 83\,964 \\
 - 52\,752 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 \text{z)} \quad 46\,786 \\
 - 36\,130 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 \text{aa)} \quad 68\,549 \\
 - 37\,143 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 \text{bb)} \quad 59\,378 \\
 - 31\,238 \\
 \hline
 \end{array}$$

$$\begin{array}{r}
 \text{cc)} \quad 86\,973 \\
 - 21\,050 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 \text{dd)} \quad 85\,947 \\
 - 42\,620 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 \text{ee)} \quad 92\,857 \\
 - 41\,141 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 \text{ff)} \quad 89\,635 \\
 - 37\,215 \\
 \hline
 \end{array}$$

Answers to Exercise Nine						
a) 8 104	b) 7 064	c) 9 523	d) 6 245	e) 1 171	f) 1 103	g) 1 222
h) 327	i) 6 803	j) 4 243	k) 2 215	l) 5 362	m) 7 410	n) 1 420
o) 3 623	p) 4 202	q) 57 561	r) 32 603	s) 48 510	t) 15 371	u) 28 202
v) 44 110	w) 22 043	x) 15 041	y) 31 212	z) 10 656	aa) 31 406	bb) 27 140
cc) 65 923	dd) 43 327	ee) 51 716	ff) 52 420			

If a subtraction question is written with the numbers side by side, rewrite the question in columns. Put the ones under the ones, the tens under the tens, the hundreds under the hundreds, and so on. The **first** number is **always** the top number and the **second** number is always written **below** the first number.

Example A: $687 - 52 = \underline{\hspace{2cm}}$

$$\begin{array}{r}
 687 \\
 - 52 \\
 \hline
 635
 \end{array}$$

Example B: $9\,756 - 420 = \underline{\hspace{2cm}}$

$$\begin{array}{r}
 9\,756 \\
 - 420 \\
 \hline
 9\,336
 \end{array}$$

Exercise Ten

Rewrite each question in columns and find the differences.
Check your work using the answer key at the end of the exercise.

a) $43 - 21 =$

b) $84 - 30 =$

c) $975 - 21 =$

d) $779 - 54 =$

e) $695 - 173 =$

f) $863 - 701 =$

g) $965 - 152 =$

h) $849 - 212 =$

i) $8\,759 - 156 =$

j) $5\,973 - 832 =$

k) $4\,986 - 514 =$

l) $2\,876 - 572 =$

m) $8\,739 - 8\,223 =$

n) $8\,684 - 3\,364 =$

o) $6\,917 - 1\,714 =$

p) $2\,965 - 2\,341 =$

q) $85\,374 - 2\,312 =$

r) $19\,806 - 2\,503 =$

s) $48\,739 - 3\,616 =$

t) $98\,562 - 7\,161 =$

u) $79\,486 - 51\,342 =$

v) $89\,528 - 84\,311 =$

w) $79\,568 - 38\,052 =$

x) $83\,964 - 62\,504 =$

Answers to Exercise Ten

- | | | | | | | |
|----------|-----------|-----------|-----------|-----------|-----------|-----------|
| a) 22 | b) 54 | c) 954 | d) 725 | e) 522 | f) 162 | g) 813 |
| h) 637 | i) 8 603 | j) 5 141 | k) 4 472 | l) 2 304 | m) 516 | n) 5 320 |
| o) 5 203 | p) 624 | q) 83 062 | r) 17 303 | s) 45 123 | t) 91 401 | u) 28 144 |
| v) 5 217 | w) 41 516 | x) 21 460 | | | | |

Topic B: Self-Test

Mark /24

Aim 19/24

A. Find the differences. Be sure to check your answers.

6 marks

a)
$$\begin{array}{r} 39 \\ -15 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 58 \\ -24 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 72 \\ -60 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 49 \\ -23 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 64 \\ -10 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 85 \\ -71 \\ \hline \end{array}$$

B. Find the differences. Be sure to check your answers.

6 marks

a)
$$\begin{array}{r} 896 \\ -385 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 698 \\ -461 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 399 \\ -202 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 467 \\ -124 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 752 \\ -231 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 497 \\ -341 \\ \hline \end{array}$$

C. Find the differences. Be sure to check your answers.

6 marks

a)
$$\begin{array}{r} 8\ 627 \\ -323 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 9\ 875 \\ -9\ 251 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 9\ 751 \\ -7\ 340 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d) } \quad 34\,859 \\ - 1\,336 \\ \hline \end{array} \qquad \begin{array}{r} \text{e) } \quad 37\,698 \\ - 12\,540 \\ \hline \end{array} \qquad \begin{array}{r} \text{f) } \quad 96\,723 \\ - 51\,403 \\ \hline \end{array}$$

D. Subtract these numbers.

6 marks

$$\text{a) } \quad 85 - 61 = \qquad \qquad \qquad \text{b) } \quad 724 - 13 =$$

$$\text{d) } \quad 879 - 152 = \qquad \qquad \qquad \text{d) } \quad 4\,957 - 821 =$$

$$\text{e) } \quad 94\,658 - 12\,307 = \qquad \qquad \qquad \text{f) } \quad 89\,653 - 27\,450 =$$

Answers to Topic B Self-Test					
A.					
a) 24	b) 34	c) 12	d) 26	e) 54	f) 14
B.					
a) 511	b) 237	c) 197	d) 343	e) 521	f) 156
C.					
a) 8 304	b) 624	c) 2 411	d) 33 523	e) 25 158	f) 45 320
D.					
a) 24	b) 711	c) 727	d) 4 136	e) 82 351	f) 62 203

Topic C: Renaming

When you subtract, you may need to **rename**. Renaming means changing from one place value to another.

For example:

1 ten can be renamed as 10 ones

1 hundred can be renamed as 10 tens

1 thousand can be renamed as 10 hundreds.

Renaming is an important part of subtracting. Sometimes the digit on top is smaller than the digit you are subtracting. This means that you will have to rename before you can subtract. This is also called **borrowing**.

Example A: 293

2 hundreds, 9 tens, 3 ones

renamed 2 hundreds, **8 tens, 13 ones**

You borrow 1 ten. The 1 ten is renamed as 10 ones.

$10 \text{ ones} + 3 \text{ ones} = 13 \text{ ones}$

Example B: 3 782

3 thousands, 7 hundreds, 8 tens, 2 ones

Renamed 3 thousands, **6 hundreds, 18 tens**, 2 ones

You borrow 1 hundred. The 1 hundred is renamed as 10 tens.

$10 \text{ tens} + 8 \text{ tens} = 18 \text{ tens}$

Exercise One

Borrow from the number in the shaded box. Check your work using the answer key at the end of the exercise.

a)

	ten thousands	thousands	hundreds	tens	ones
423			4	2	3
			4	<i>1</i>	<i>13</i>

b)

	ten thousands	thousands	hundreds	tens	ones
642					

c)

	ten thousands	thousands	hundreds	tens	ones
1 456					

d)

	ten thousands	thousands	hundreds	tens	ones
5 423					

e)

	ten thousands	thousands	hundreds	tens	ones
6 384					

f)

	ten thousands	thousands	hundreds	tens	ones
9 537					

g)

	ten thousands	thousands	hundreds	tens	ones
2 461					

h)

	ten thousands	thousands	hundreds	tens	ones
5 678					

i)

	ten thousands	thousands	hundreds	tens	ones
57 347					

j)

	ten thousands	thousands	hundreds	tens	ones
36 789					

k)

	ten thousands	thousands	hundreds	tens	ones
46 124					

l)

	ten thousands	thousands	hundreds	tens	ones
36 154					

Answers to Exercise One

a)

	ten thousands	thousands	hundreds	tens	ones
642			6	4	2
			6	3	12

b)

	ten thousands	thousands	hundreds	tens	ones
1 456		1	4	5	6
		1	4	4	16

c)

	ten thousands	thousands	hundreds	tens	ones
5 423		5	4	2	3
		5	4	1	13

d)

	ten thousands	thousands	hundreds	tens	ones
6 384		6	3	8	4
		6	2	18	4

e)

	ten thousands	thousands	hundreds	tens	ones
9 537		9	5	3	7
		9	4	13	7

f)

	ten thousands	thousands	hundreds	tens	ones
2 461		2	4	6	1
		2	3	16	1

g)

	ten thousands	thousands	hundreds	tens	ones
5 678		5	6	7	8
		5	5	17	8

h)

	ten thousands	thousands	hundreds	tens	ones
57 347	5	7	3	4	7
	5	6	13	4	7

i)

	ten thousands	thousands	hundreds	tens	ones
36 789	3	6	7	8	9
	3	5	17	8	9

j)

	ten thousands	thousands	hundreds	tens	ones
46 124	4	6	1	2	4
	3	16	1	2	4

k)

	ten thousands	thousands	hundreds	tens	ones
36 154	3	6	1	5	4
	2	16	1	5	4

Sometimes there is a zero in the place where you want to borrow from. You will need to move one more place value to the **left** and borrow from there.

Example A: 203

2 hundreds, 0 tens, 3 ones

renamed **1 hundreds, 10 tens**, 3 ones

You borrow 1 hundred. The 1 hundred is renamed as 10 tens.

1 hundred, **9 tens, 13 ones**

Then, you borrow 1 ten. The 1 ten is renamed as 10 ones.

10 ones + 3 ones = 13 ones

Example B: 30 782

3 ten thousands, 0 thousands, 7 hundreds, 8 tens, 2 ones

renamed **2 ten thousands, 10 thousands**, 7 hundreds, 8 tens, 2 ones

You borrow 1 ten thousand. The 1 ten thousand is renamed as 10 thousands.

2 ten thousands, **9 thousands, 17 hundreds**, 8 tens, 2 ones

Then, you borrow 1 thousand. The 1 thousand is renamed as 10 hundreds.

10 hundreds + 7 hundreds = 17 hundreds

Exercise Two

Borrow from the number in the shaded box. Check your work using the answer key at the end of the exercise.

a)

	ten thousands	thousands	hundreds	tens	ones
403			4	0	3
			3	10	3
			3	9	13

b)

	ten thousands	thousands	hundreds	tens	ones
501					

c)

	ten thousands	thousands	hundreds	tens	ones
904					

d)

	ten thousands	thousands	hundreds	tens	ones
307					

e)

	ten thousands	thousands	hundreds	tens	ones
2 056					

f)

	ten thousands	thousands	hundreds	tens	ones
1 069					

g)

	ten thousands	thousands	hundreds	tens	ones
4 032					

h)

	ten thousands	thousands	hundreds	tens	ones
6 095					

i)

	ten thousands	thousands	hundreds	tens	ones
10 869					

j)

	ten thousands	thousands	hundreds	tens	ones
70 361					

k)

	ten thousands	thousands	hundreds	tens	ones
50 428					

l)

	ten thousands	thousands	hundreds	tens	ones
50 921					

Answers to Exercise Two

a)

	ten thousands	thousands	hundreds	tens	ones
403			4	0	3
			3	10	3
			3	9	13

b)

	ten thousands	thousands	hundreds	tens	ones
501			5	0	1
			4	10	1
			4	9	11

c)

	ten thousands	thousands	hundreds	tens	ones
904			9	0	4
			8	10	4
			8	9	14

d)

	ten thousands	thousands	hundreds	tens	ones
307			3	0	7
			2	10	7
			2	9	17

e)

	ten thousands	thousands	hundreds	tens	ones
2 056		2	0	5	6
		1	10	5	6
		1	9	15	6

f)

	ten thousands	thousands	hundreds	tens	ones
1 069		1	0	6	9
		0	10	6	9
		0	9	16	9

g)

	ten thousands	thousands	hundreds	tens	ones
4 032		4	0	3	2
		3	10	3	2
		3	9	13	2

h)

	ten thousands	thousands	hundreds	tens	ones
6 095		6	0	9	5
		5	10	9	5
		5	9	19	5

i)

	ten thousands	thousands	hundreds	tens	ones
10 869	1	0	8	6	9
	0	10	8	6	9
	0	9	18	6	9

j)

	ten thousands	thousands	hundreds	tens	ones
70 361	7	0	3	6	1
	6	10	3	6	1
	6	9	13	6	1

k)

	ten thousands	thousands	hundreds	tens	ones
50 428	5	0	4	2	8
	4	10	4	2	8
	4	9	14	2	8

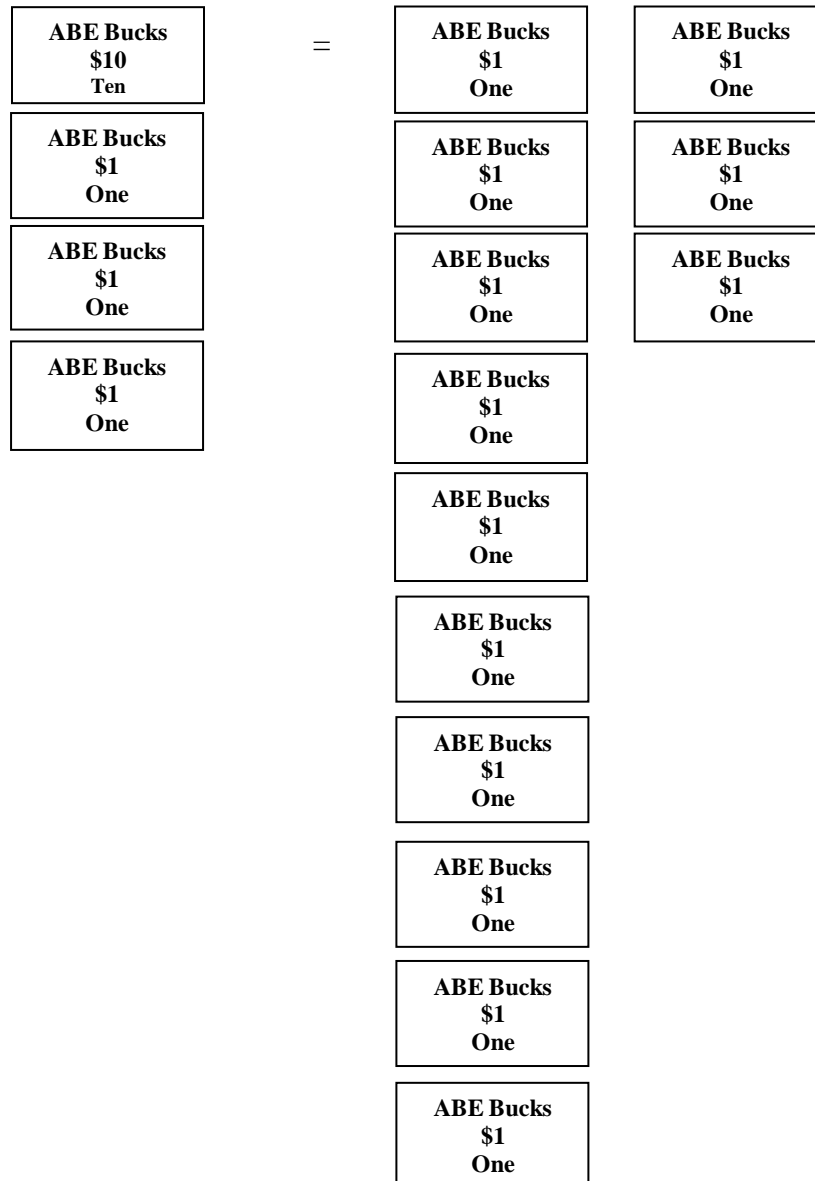
l)

	ten thousands	thousands	hundreds	tens	ones
50 921	5	0	9	2	1
	4	10	9	2	1
	4	9	19	2	1

Need more practice?

Ask your instructor for some play money. Using the one, ten, hundred, thousand, ten thousand and hundred thousand dollar bills, practice trading one of one type of bill for ten of the lesser place value.

Example:



Topic C: Self-Test

Mark /12

Aim 10/12

A. Borrow from the number in the shaded box.

6 marks

a)

	ten thousands	thousands	hundreds	tens	ones
783					

b)

	ten thousands	thousands	hundreds	tens	ones
827					

c)

	ten thousands	thousands	hundreds	tens	ones
7 942					

d)

	ten thousands	thousands	hundreds	tens	ones
5 364					

e)

	ten thousands	thousands	hundreds	tens	ones
28 634					

f) Rename the thousands.

	ten thousands	thousands	hundreds	tens	ones
62 751					

B. Borrow from the number in the shaded box.

6 marks

a)

	ten thousands	thousands	hundreds	tens	ones
602					

b)

	ten thousands	thousands	hundreds	tens	ones
805					

c)

	ten thousands	thousands	hundreds	tens	ones
3 075					

d)

	ten thousands	thousands	hundreds	tens	ones
7 048					

e)

	ten thousands	thousands	hundreds	tens	ones
30 478					

f)

	ten thousands	thousands	hundreds	tens	ones
80 946					

Answers to Topic C Self-Test

A.

a)

	ten thousands	thousands	hundreds	tens	ones
783			7	8	3
			7	7	13

b)

	ten thousands	thousands	hundreds	tens	ones
827			8	2	7
			8	1	17

c)

	ten thousands	thousands	hundreds	tens	ones
7 942		7	9	4	2
		7	8	14	2

d)

	ten thousands	thousands	hundreds	tens	ones
5 364		5	3	6	4
		5	2	16	4

e)

	ten thousands	thousands	hundreds	tens	ones
28 634	2	8	6	3	4
	2	7	16	3	4

f)

	ten thousands	thousands	hundreds	tens	ones
62 751	6	2	7	5	1
	6	1	17	5	1

B. Rename the number in the shaded box.

g)

	ten thousands	thousands	hundreds	tens	ones
602			6	0	2
			5	10	2
			5	9	12

h)

	ten thousands	thousands	hundreds	tens	ones
805			8	0	5
			7	10	5
			7	9	15

i)

	ten thousands	thousands	hundreds	tens	ones
3 075		3	0	7	5
		2	10	7	5
		2	9	17	5

j)

	ten thousands	thousands	hundreds	tens	ones
7 048		7	0	4	8
		6	10	4	8
		6	9	14	8

k)

	ten thousands	thousands	hundreds	tens	ones
30 478	3	0	4	7	8
	2	10	4	7	8
	2	9	14	7	8

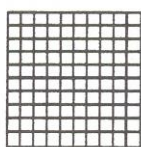
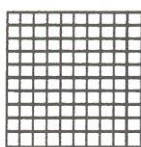
l)

	ten thousands	thousands	hundreds	tens	ones
80 946	8	0	9	4	6
	7	10	9	4	6
	7	9	19	4	6

Topic D: Subtraction with Borrowing

When you subtract, the digit that you are taking away may be larger than the top digit in that same column. You must **borrow** from the column on the left. First, let's look at two examples using the place value shapes.

Example A:
$$\begin{array}{r} 243 \\ - 128 \\ \hline \end{array}$$



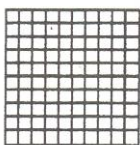
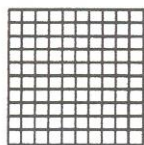
2 hundreds

4 tens

3 ones

Step 1: 3 ones – 8 ones cannot be done

Borrow one ten and rename it as ten ones. Add the ten ones to the three ones.



2 hundreds

3 tens 13 ones

Now you can subtract: 13 ones - 8 ones = 5 ones

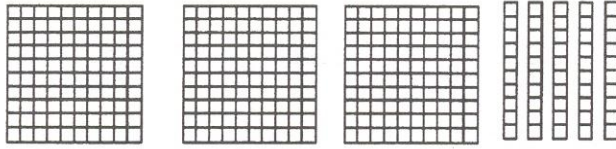
Step 2: Subtract the tens. 3 tens – 2 tens = 1 ten

Step 3: Subtract the hundreds. 2 hundreds – 1 hundred = 1 hundred

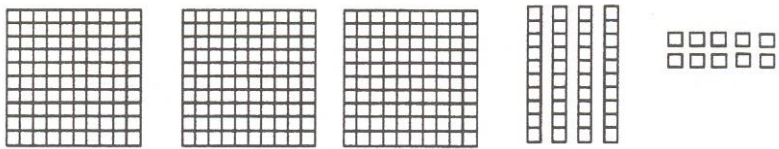
Here is the question using numerals.

$$\begin{array}{r} ^3 ^{13} \\ \cancel{2} \cancel{4} \cancel{3} \\ - 128 \\ \hline 115 \end{array}$$

Example B: 350
 $- 124$



Step 1: 0 ones – 4 ones cannot be done
 Borrow one ten and rename it as ten ones.



10 ones – 4 ones = 6 ones

Step 2: 4 tens – 2 tens = 2 tens

Step 3: 3 hundreds – 1 hundred = 2 hundreds

This is how the question looks using numerals.

$$\begin{array}{r} 4 \ 10 \\ 3\cancel{5}0 \\ - 124 \\ \hline 226 \end{array}$$

Exercise One

You may need to borrow 1 ten and rename it as 10 ones to do these subtractions. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \\ \cancel{58} \\ \underline{16} \\ 37 \end{array}$$

$$\begin{array}{r} \\ \cancel{82} \\ \underline{-45} \\ 37 \end{array}$$

$$\begin{array}{r} 37 \\ \underline{-9} \end{array}$$

$$\begin{array}{r} 28 \\ \underline{-4} \end{array}$$

$$\begin{array}{r} 63 \\ \underline{-7} \end{array}$$

$$\begin{array}{r} 54 \\ \underline{-5} \end{array}$$

$$\begin{array}{r} 25 \\ \underline{-7} \end{array}$$

$$\begin{array}{r} 84 \\ \underline{-6} \end{array}$$

$$\begin{array}{r} 45 \\ \underline{-15} \end{array}$$

$$\begin{array}{r} 40 \\ \underline{-38} \end{array}$$

$$\begin{array}{r} 45 \\ \underline{-20} \end{array}$$

$$\begin{array}{r} 70 \\ \underline{-21} \end{array}$$

$$\begin{array}{r} 645 \\ \underline{-26} \end{array}$$

$$\begin{array}{r} 258 \\ \underline{-14} \end{array}$$

$$\begin{array}{r} 786 \\ \underline{-47} \end{array}$$

$$\begin{array}{r} 895 \\ \underline{-29} \end{array}$$

$$\begin{array}{r} 747 \\ \underline{-109} \end{array}$$

$$\begin{array}{r} 642 \\ \underline{-420} \end{array}$$

$$\begin{array}{r} 438 \\ \underline{-215} \end{array}$$

$$\begin{array}{r} 953 \\ \underline{-838} \end{array}$$

$$\begin{array}{r} 532 \\ \underline{-314} \end{array}$$

$$\begin{array}{r} 795 \\ \underline{-238} \end{array}$$

$$\begin{array}{r} 956 \\ \underline{-348} \end{array}$$

$$\begin{array}{r} 574 \\ \underline{-218} \end{array}$$

Answers to Exercise One

a) 37	b) 37	c) 28	d) 24	e) 56	f) 49	g) 18
h) 78	i) 30	j) 2	k) 25	l) 49	m) 619	n) 244
o) 739	p) 866	q) 638	r) 222	s) 223	t) 115	u) 218
v) 557	w) 608	x) 356				

Exercise Two

You may need to borrow 1 ten and rename it as 10 ones to do these subtractions. Check your work using the answer key at the end of the exercise.

a)	$\begin{array}{r} 43 \\ -9 \\ \hline \end{array}$	b)	$\begin{array}{r} 54 \\ -7 \\ \hline \end{array}$	c)	$\begin{array}{r} 67 \\ -8 \\ \hline \end{array}$	d)	$\begin{array}{r} 38 \\ -9 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

e)	$\begin{array}{r} 73 \\ -49 \\ \hline \end{array}$	f)	$\begin{array}{r} 82 \\ -27 \\ \hline \end{array}$	g)	$\begin{array}{r} 78 \\ -39 \\ \hline \end{array}$	h)	$\begin{array}{r} 64 \\ -37 \\ \hline \end{array}$
----	--	----	--	----	--	----	--

i)	$\begin{array}{r} 86 \\ -59 \\ \hline \end{array}$	j)	$\begin{array}{r} 91 \\ -25 \\ \hline \end{array}$	k)	$\begin{array}{r} 72 \\ -16 \\ \hline \end{array}$	l)	$\begin{array}{r} 83 \\ -35 \\ \hline \end{array}$
----	--	----	--	----	--	----	--

m)	$\begin{array}{r} 172 \\ -37 \\ \hline \end{array}$	n)	$\begin{array}{r} 621 \\ -16 \\ \hline \end{array}$	o)	$\begin{array}{r} 894 \\ -19 \\ \hline \end{array}$	p)	$\begin{array}{r} 930 \\ -27 \\ \hline \end{array}$
----	---	----	---	----	---	----	---

$$\begin{array}{r} \text{q)} \quad 692 \\ - 568 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 962 \\ - 543 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 983 \\ - 464 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 791 \\ - 778 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 632 \\ - 329 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 940 \\ - 726 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 880 \\ - 635 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 981 \\ - 922 \\ \hline \end{array}$$

Answers to Exercise Two

a) 34	b) 47	c) 59	d) 29	e) 24	f) 55	g) 39
h) 27	i) 27	j) 66	k) 56	l) 48	m) 135	n) 605
o) 875	p) 903	q) 124	r) 419	s) 519	t) 13	u) 303
v) 214	w) 245	x) 59				

To check your subtraction, add the **answer** (the **difference**) to the number you took away. If your subtracting was correct, the result of the adding will equal the number you started with in the subtraction question.

Example A:

$$\begin{array}{r} 726 \\ - 317 \\ \hline 409 \end{array} \quad \text{difference}$$

To check, add 409 to 317.

$$\begin{array}{r} 409 \\ + 317 \\ \hline 726 \end{array} \quad \checkmark$$

Exercise Three

You may need to borrow 1 ten and rename it as 10 ones to do these subtractions. Use the method for checking your answer beside each question. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 42 \\ -5 \\ \hline 37 \end{array}$$

Check:
$$\begin{array}{r} 37 \\ +5 \\ \hline 42 \end{array} \quad \checkmark$$

b)
$$\begin{array}{r} 83 \\ -6 \\ \hline \end{array} \quad \textit{Check:}$$

c)
$$\begin{array}{r} 91 \\ -7 \\ \hline \end{array}$$

Check:

d)
$$\begin{array}{r} 70 \\ -4 \\ \hline \end{array} \quad \textit{Check:}$$

e)
$$\begin{array}{r} 64 \\ -37 \\ \hline \end{array} \quad \textit{Check:}$$

f)
$$\begin{array}{r} 32 \\ -16 \\ \hline \end{array} \quad \textit{Check:}$$

g)
$$\begin{array}{r} 65 \\ -16 \\ \hline \end{array} \quad \textit{Check:}$$

h)
$$\begin{array}{r} 98 \\ -39 \\ \hline \end{array} \quad \textit{Check:}$$

i)
$$\begin{array}{r} 775 \\ -49 \\ \hline \end{array} \quad \textit{Check:}$$

j)
$$\begin{array}{r} 974 \\ -26 \\ \hline \end{array} \quad \textit{Check:}$$

k)
$$\begin{array}{r} 483 \\ - 75 \\ \hline \end{array}$$
 Check:

l)
$$\begin{array}{r} 896 \\ - 57 \\ \hline \end{array}$$
 Check:

m)
$$\begin{array}{r} 785 \\ - 627 \\ \hline \end{array}$$
 Check:

n)
$$\begin{array}{r} 961 \\ - 543 \\ \hline \end{array}$$
 Check:

o)
$$\begin{array}{r} 941 \\ - 319 \\ \hline \end{array}$$
 Check:

p)
$$\begin{array}{r} 850 \\ - 434 \\ \hline \end{array}$$
 Check:

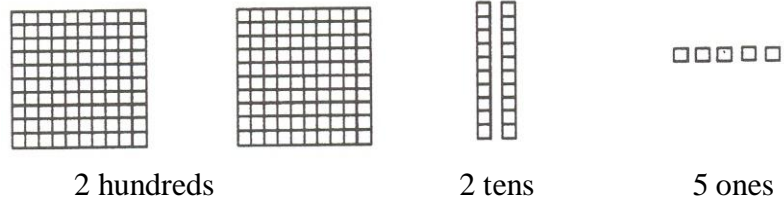
Answers to Exercise Three

- | | | | | | | |
|--------|--------|--------|--------|--------|--------|--------|
| a) 37 | b) 377 | c) 84 | d) 66 | e) 27 | f) 16 | g) 49 |
| h) 59 | i) 726 | j) 948 | k) 408 | l) 839 | m) 158 | n) 418 |
| o) 622 | p) 416 | | | | | |

Use this same method of **borrowing** when you subtract the hundreds, thousands, ten thousands, and so on. Look at the place value shapes as you work through these examples.

Example A:

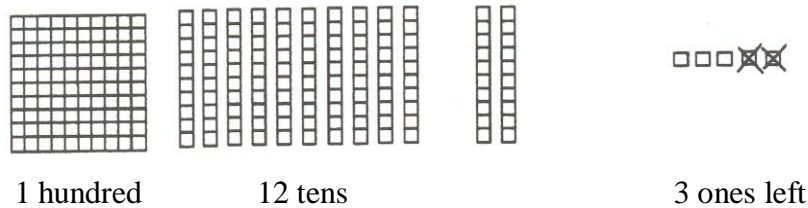
$$\begin{array}{r} 225 \\ - 162 \\ \hline \end{array}$$



Step 1: 5 ones – 2 ones = 3 ones

Step 2: 2 tens – 6 tens (can't be done)

Borrow one hundred and rename it as 10 tens which you add onto the 2 tens.



$$12 \text{ tens} - 6 \text{ tens} = 6 \text{ tens}$$

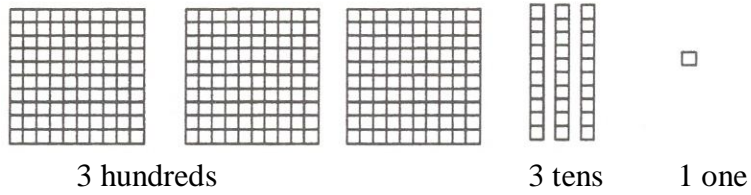
Step 3: 1 hundred – 1 hundred = 0 hundreds

Note: The 0 in the hundreds is not needed in the answer (063) because it is the first digit and does not have to hold the place.

$$\begin{array}{r} 1 2 \\ \cancel{2} \cancel{2} 5 \\ - 162 \\ \hline 63 \end{array}$$

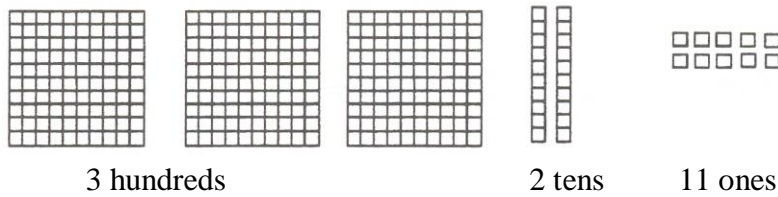
Example B:

$$\begin{array}{r} 331 \\ - 145 \\ \hline \end{array}$$



Step 1: 1 one – 5 ones (can't be done)

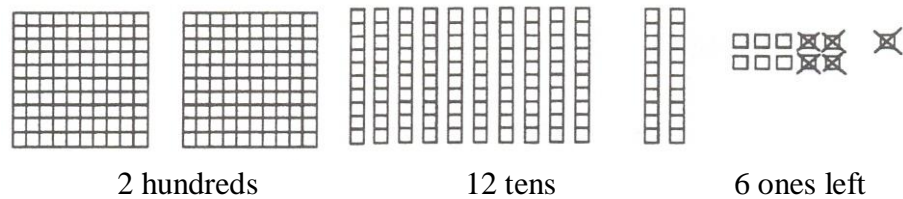
Borrow 1 ten and rename it as 10 ones which you add onto the 1 one.



$$11 \text{ ones} - 5 \text{ ones} = 6 \text{ ones}$$

Step 2: 2 tens – 4 tens (can't be done)

Borrow one hundred and rename it as 10 tens which you add onto the 2 tens.



Step 3: 2 hundreds – 1 hundred = 1 hundred

$$\begin{array}{r} 12 \\ 2 \cancel{2} \cancel{1} \\ - 145 \\ \hline 186 \end{array}$$

check $\begin{array}{r} 11 \\ 186 \\ + 145 \\ \hline 331 \end{array}$ ✓

Exercise Four

Subtract the following. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} ^7 ^{16} \\ 286 \\ - 138 \\ \hline 148 \end{array}$$

$$\begin{array}{r} ^7 ^{11} \\ 481 \\ - 225 \\ \hline 256 \end{array}$$

$$\begin{array}{r} 390 \\ - 135 \\ \hline \end{array}$$

$$\begin{array}{r} 825 \\ - 673 \\ \hline \end{array}$$

$$\begin{array}{r} 734 \\ - 582 \\ \hline \end{array}$$

$$\begin{array}{r} 281 \\ - 175 \\ \hline \end{array}$$

$$\begin{array}{r} 925 \\ - 68 \\ \hline \end{array}$$

$$\begin{array}{r} 260 \\ - 154 \\ \hline \end{array}$$

$$\begin{array}{r} 379 \\ - 235 \\ \hline \end{array}$$

$$\begin{array}{r} 532 \\ - 290 \\ \hline \end{array}$$

$$\begin{array}{r} 82 \\ - 79 \\ \hline \end{array}$$

$$\begin{array}{r} 262 \\ - 39 \\ \hline \end{array}$$

$$\begin{array}{r} 427 \\ - 183 \\ \hline \end{array}$$

$$\begin{array}{r} 452 \\ - 173 \\ \hline \end{array}$$

$$\begin{array}{r} 692 \\ - 473 \\ \hline \end{array}$$

$$\begin{array}{r} 634 \\ - 273 \\ \hline \end{array}$$

$$\begin{array}{r} 465 \\ - 374 \\ \hline \end{array}$$

$$\begin{array}{r} 785 \\ - 147 \\ \hline \end{array}$$

$$\begin{array}{r} 937 \\ - 258 \\ \hline \end{array}$$

$$\begin{array}{r} 946 \\ - 463 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 734 \\ - 208 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 563 \\ - 154 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 782 \\ - 254 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 621 \\ - 442 \\ \hline \end{array}$$

Answers to Exercise Four

a) 148	b) 256	c) 255	d) 152	e) 152	f) 106	g) 857
h) 106	i) 144	j) 242	k) 3	l) 223	m) 244	n) 279
o) 219	p) 361	q) 91	r) 638	s) 679	t) 483	u) 526
v) 409	w) 528	x) 179				

Exercise Five

Subtract the following. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 945 \\ - 256 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 698 \\ - 126 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 758 \\ - 439 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 594 \\ - 289 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 491 \\ - 113 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 738 \\ - 167 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 569 \\ - 243 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 964 \\ - 745 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 450 \\ - 261 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 681 \\ - 382 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 780 \\ - 152 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 514 \\ - 235 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 859 \\ - 297 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 940 \\ - 426 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 536 \\ - 369 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 391 \\ - 158 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 447 \\ - 239 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 671 \\ - 287 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 240 \\ - 149 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 912 \\ - 792 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 274 \\ - 154 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 806 \\ - 784 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 560 \\ - 357 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 892 \\ - 284 \\ \hline \end{array}$$

Answers to Exercise Five

a) 689	b) 572	c) 319	d) 305	e) 378	f) 571	g) 326
h) 219	i) 189	j) 299	k) 628	l) 279	m) 562	n) 514
o) 167	p) 233	q) 208	r) 384	s) 91	t) 120	u) 120
v) 22	w) 203	x) 608				

Exercise Six

Subtract the following. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 776 \\ - 382 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 436 \\ - 327 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 957 \\ - 234 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 845 \\ - 416 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 967 \\ -173 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 406 \\ -257 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 857 \\ -143 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 757 \\ -129 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 567 \\ -182 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 952 \\ -278 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 863 \\ -389 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 689 \\ -434 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 754 \\ -526 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 572 \\ -493 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 714 \\ -588 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 795 \\ -497 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 390 \\ -256 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 745 \\ -649 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 639 \\ -484 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 811 \\ -173 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 678 \\ -290 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 740 \\ -272 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 983 \\ -876 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 839 \\ -653 \\ \hline \end{array}$$

Answers to Exercise Six

a) 394	b) 109	c) 723	d) 429	e) 794	f) 149	g) 714
h) 628	i) 385	j) 674	k) 474	l) 255	m) 228	n) 79
o) 126	p) 298	q) 134	r) 96	s) 155	t) 638	u) 388
v) 468	w) 107	x) 186				

$$\begin{array}{r} \text{m)} \quad 8\,684 \\ - 2\,916 \\ \hline \end{array} \quad \begin{array}{r} \text{n)} \quad 7\,459 \\ - 3\,927 \\ \hline \end{array} \quad \begin{array}{r} \text{o)} \quad 8\,360 \\ - 6\,376 \\ \hline \end{array} \quad \begin{array}{r} \text{p)} \quad 9\,418 \\ - 4\,739 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 75\,762 \\ - 9\,351 \\ \hline \end{array} \quad \begin{array}{r} \text{r)} \quad 72\,641 \\ - 8\,736 \\ \hline \end{array} \quad \begin{array}{r} \text{s)} \quad 16\,793 \\ - 7\,325 \\ \hline \end{array} \quad \begin{array}{r} \text{t)} \quad 12\,533 \\ - 9\,362 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 72\,209 \\ - 9\,786 \\ \hline \end{array} \quad \begin{array}{r} \text{v)} \quad 34\,092 \\ - 4\,538 \\ \hline \end{array} \quad \begin{array}{r} \text{w)} \quad 42\,126 \\ - 24\,762 \\ \hline \end{array} \quad \begin{array}{r} \text{x)} \quad 52\,750 \\ - 14\,789 \\ \hline \end{array}$$

Answers to Exercise Seven

a) 3 571 b) 7 811 c) 4 920 d) 5 500 e) 7 684 f) 2 769 g) 2 949
h) 1 806 i) 3 317 j) 2 841 k) 1 755 l) 4 811 m) 5 768 n) 3 532
o) 1 984 p) 4 679 q) 66 411 r) 63 905 s) 9 468 t) 3 171 u) 62 423
v) 29 554 w) 17 364 x) 37 961

Exercise Eight

Find the differences. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 2\,735 \\ - 846 \\ \hline \end{array} \quad \begin{array}{r} \text{b)} \quad 1\,123 \\ - 417 \\ \hline \end{array} \quad \begin{array}{r} \text{c)} \quad 4\,263 \\ - 859 \\ \hline \end{array} \quad \begin{array}{r} \text{d)} \quad 3\,614 \\ - 923 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 5\,712 \\ - 747 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 2\,170 \\ - 995 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 8\,795 \\ - 844 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 7\,641 \\ - 789 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 4\,232 \\ - 3\,496 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 7\,380 \\ - 1\,467 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 7\,209 \\ - 2\,686 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 6\,321 \\ - 3\,518 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 6\,893 \\ - 1\,931 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 7\,082 \\ - 4\,675 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 7\,174 \\ - 6\,318 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 6\,920 \\ - 5\,253 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 15\,748 \\ - 6\,926 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 15\,653 \\ - 7\,856 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 70\,534 \\ - 7\,689 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 67\,512 \\ - 9\,923 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 72\,431 \\ - 5\,316 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 92\,644 \\ - 6\,741 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 61\,434 \\ - 27\,429 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 54\,081 \\ - 36\,835 \\ \hline \end{array}$$

Answers to Exercise Eight

a) 1 889 b) 706 c) 3 404 d) 2 691 e) 4 965 f) 1 175 g) 7 951
 h) 6 852 i) 736 j) 5 913 k) 4 523 l) 2 803 m) 4 962 n) 2 407
 o) 856 p) 1 667 q) 8 822 r) 7 797 s) 62 845 t) 57 589 u) 67 115
 v) 85 903 w) 34 005 x) 17 246

Exercise Nine

Find the differences. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} 312512 \\ 4262 \\ - 2738 \\ \hline 1524 \end{array}$$

$$\begin{array}{r} \text{b)} \quad 3236 \\ - 1594 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 4697 \\ - 3268 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 8321 \\ - 4543 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 2831 \\ - 289 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 5623 \\ - 3352 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 8428 \\ - 6309 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 9629 \\ - 7258 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 5230 \\ - 2456 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 3682 \\ - 963 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 29285 \\ - 18357 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 43325 \\ - 3187 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 81328 \\ - 22595 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 58234 \\ - 23678 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 28243 \\ - 9578 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 3245 \\ - 1678 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 6\,254 \\ -1\,733 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 5\,214 \\ -1\,783 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 23\,244 \\ -15\,534 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 16\,121 \\ -12\,768 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 53\,507 \\ -14\,421 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 31\,582 \\ -14\,413 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 71\,629 \\ -12\,350 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 44\,610 \\ -13\,071 \\ \hline \end{array}$$

Answers to Exercise Nine

a) 1 524 b) 1 642 c) 1 429 d) 3 778 e) 2 542 f) 2 271 g) 2 119
h) 2 371 i) 2 774 j) 2 719 k) 10 928 l) 40 138 m) 58 733 n) 34 556
o) 18 665 p) 1 567 q) 4 521 r) 3 431 s) 7 710 t) 3 353 u) 39 086
v) 17 169 w) 59 279 x) 31 539

Zeroes in Subtracting

You will have subtraction questions with a zero in the place that you want to borrow from. You have to do a double borrowing. Look carefully at the example.

Example:

$$\begin{array}{r} 2405 \\ - 368 \\ \hline \end{array}$$

Step 1: 5 ones – 8 ones (can't be done)

Borrow one ten – whoops – no tens!

Borrow one hundred and rename it as 10 tens...

$$\begin{array}{r} ^3 ^{10} \\ 2 \cancel{4} \cancel{0} \\ - 368 \\ \hline \end{array}$$

Now, borrow a ten. 15 ones – 8 ones = 7 ones

$$\begin{array}{r} ^9 \\ ^3 \cancel{4}^{15} \\ 2 \cancel{4} \cancel{0} \\ - 368 \\ \hline 7 \end{array}$$

Step 2: 9 tens – 6 tens = 3 tens

Step 3: 3 hundreds – 3 hundreds = 0 hundreds

Step 4: 2 thousands – no thousands = 2 thousands

$$\begin{array}{r} ^9 \\ ^3 \cancel{4}^{15} \\ 2 \cancel{4} \cancel{0} \\ - 368 \\ \hline 2037 \end{array}$$

Exercise Ten

Find the differences. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 102 \\ -23 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 508 \\ -39 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 804 \\ -37 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 607 \\ -48 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 406 \\ -178 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 302 \\ -218 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 203 \\ -157 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 601 \\ -296 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 2\,075 \\ -436 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 3\,076 \\ -594 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 4\,037 \\ -289 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 6\,032 \\ -764 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 4\,057 \\ -2\,049 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 6\,035 \\ -2\,634 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 9\,025 \\ -4\,603 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 5\,075 \\ -2\,364 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 50\,398 \\ -4\,247 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 40\,683 \\ -3\,162 \\ \hline \end{array}$$

s)
$$\begin{array}{r} 50\,216 \\ -5\,183 \\ \hline \end{array}$$

t)
$$\begin{array}{r} 60\,831 \\ -7\,081 \\ \hline \end{array}$$

$$\begin{array}{r}
 \text{u)} \quad 40\,465 \\
 - 21\,528 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 \text{v)} \quad 30\,429 \\
 - 14\,953 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 \text{w)} \quad 70\,543 \\
 - 37\,835 \\
 \hline
 \end{array}
 \quad
 \begin{array}{r}
 \text{x)} \quad 80\,106 \\
 - 47\,297 \\
 \hline
 \end{array}$$

Answers to Exercise Ten

- | | | | | | | |
|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| a) 79 | b) 469 | c) 767 | d) 559 | e) 228 | f) 84 | g) 46 |
| h) 305 | i) 1 639 | j) 2 482 | k) 3 748 | l) 5 268 | m) 2 008 | n) 3 401 |
| o) 4 422 | p) 2 711 | q) 46 151 | r) 37 521 | s) 45 033 | t) 53 750 | u) 18 937 |
| v) 15 476 | w) 32 708 | x) 32 809 | | | | |

Exercise Eleven

Find the differences. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r}
 \text{a)} \quad \begin{array}{r}
 ^9 \\
 3 \cancel{4} ^{10} \\
 \cancel{400} \\
 - 197 \\
 \hline
 203
 \end{array}
 \quad
 \text{b)} \quad \begin{array}{r}
 307 \\
 - 138 \\
 \hline
 \end{array}
 \quad
 \text{c)} \quad \begin{array}{r}
 800 \\
 - 475 \\
 \hline
 \end{array}
 \quad
 \text{d)} \quad \begin{array}{r}
 608 \\
 - 439 \\
 \hline
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \text{e)} \quad \begin{array}{r}
 307 \\
 - 168 \\
 \hline
 \end{array}
 \quad
 \text{f)} \quad \begin{array}{r}
 200 \\
 - 99 \\
 \hline
 \end{array}
 \quad
 \text{g)} \quad \begin{array}{r}
 400 \\
 - 43 \\
 \hline
 \end{array}
 \quad
 \text{h)} \quad \begin{array}{r}
 208 \\
 - 126 \\
 \hline
 \end{array}
 \end{array}$$

$$\begin{array}{r} \text{i)} \quad 3\,000 \\ - 2\,678 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 7\,205 \\ - 2\,306 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 2\,048 \\ - 281 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 6\,005 \\ - 2\,368 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 5\,000 \\ - 3\,468 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 4\,006 \\ - 2\,179 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 3\,007 \\ - 1\,930 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 2\,007 \\ - 237 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 43\,004 \\ - 2\,873 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 20\,038 \\ - 9\,156 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 60\,125 \\ - 8\,421 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 40\,063 \\ - 2\,734 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 70\,059 \\ - 38\,423 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 80\,062 \\ - 35\,087 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 90\,035 \\ - 68\,746 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 60\,063 \\ - 55\,895 \\ \hline \end{array}$$

Answers to Exercise Eleven						
a) 203	b) 169	c) 325	d) 169	e) 139	f) 101	g) 357
h) 82	i) 322	j) 4 899	k) 1 767	l) 3 637	m) 1 532	n) 1 827
o) 1 077	p) 1 770	q) 40 131	r) 10 882	s) 51 704	t) 37 329	u) 31 636
v) 44 975	w) 21 289	x) 4 168				

If a subtraction question has the numbers side by side, rewrite the question in columns. Put the ones under the ones, the tens under the tens, the hundreds under the hundreds, etc.

Example: $5\ 625 - 2\ 468 = \underline{\hspace{2cm}}$

$$\begin{array}{r} 11 \\ 5\ 625 \\ - 2\ 468 \\ \hline 3\ 157 \end{array}$$

Exercise Twelve

Rewrite each question in columns and find the difference.
Check your work using the answer key at the end of the exercise.

a) $5\ 042 - 3\ 185 =$

b) $8\ 042 - 6\ 368 =$

c) $2\ 630 - 95 =$

d) $1\ 201 - 159 =$

e) $34\ 582 - 6\ 121 =$

f) $44\ 610 - 4\ 527 =$

g) $54\,507 - 13\,421 =$

h) $7\,050 - 2\,144 =$

i) $71\,629 - 12\,350 =$

j) $64\,182 - 28\,934 =$

Answers to Exercise Twelve

a) 1 857 b) 1 674 c) 2 535 d) 1 042 e) 28 461 f) 40 083 g) 41 086
h) 4 906 i) 59 279 j) 35 248

Topic D: Self-Test

Mark /15

Aim 11/15

A. Find the differences. Be sure to check your answers using addition. 12 marks

a)
$$\begin{array}{r} 71 \\ - 32 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 704 \\ - 325 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 400 \\ - 208 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 8\ 923 \\ - 3\ 061 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 5\ 211 \\ - 4\ 390 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 8\ 204 \\ - 3\ 461 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 9\ 074 \\ - 5\ 482 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 8\ 092 \\ - 6\ 578 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 49\ 053 \\ - 8\ 954 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 86\ 502 \\ - 6\ 590 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 47\ 293 \\ - 26\ 349 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 73\ 050 \\ - 27\ 455 \\ \hline \end{array}$$

B. Subtract.**3 marks**

a) $5\,302 - 3\,981 =$

b) $7\,043 - 95 =$

c) $6\,000 - 989 =$

Answers to Topic D Self-Test**A.**

a) 39

b) 379

c) 192

d) 5 862

e) 821

f) 4 743

g) 3 592

h) 1 514

i) 40 099

j) 79 912

k) 20 944

l) 45 595

B.

a) 1 321

b) 6 948

c) 5 011

Topic E: Estimating Answers in Subtraction

You have learned how to round numbers. Now you can use that skill in rounding numbers to find an **approximate** difference.

By estimating your answer first, you can tell if your answer is sensible.

In these examples, estimate the answer. Round each number **BEFORE** you subtract.

Example A:

$$\begin{array}{r} 47 \\ - 26 \\ \hline \end{array}$$

rounds to

$$\begin{array}{r} 50 \\ - 30 \\ \hline 20 \end{array}$$

Example B:

$$\begin{array}{r} 870 \\ - 342 \\ \hline \end{array}$$

rounds to

$$\begin{array}{r} 900 \\ - 300 \\ \hline 600 \end{array}$$

Example C:

$$\begin{array}{r} 24\,397 \\ - 6\,148 \\ \hline \end{array}$$

rounds to

$$\begin{array}{r} 24\,000 \\ - 6\,000 \\ \hline 18\,000 \end{array}$$

Usually you estimate to the largest place value that you can.

Exercise One

Estimate the differences. Round the numbers before you subtract. Check your work using the answer key at the end of the exercise.

a)

$$\begin{array}{r} 9\,963 \approx 10\,000 \\ - 7\,099 \approx - 7\,000 \\ \hline 3\,000 \end{array}$$

b)

$$\begin{array}{r} 70\,534 \approx 71\,000 \\ - 7\,689 \approx - 8\,000 \\ \hline 63\,000 \end{array}$$

c)
$$\begin{array}{r} 687 \\ -438 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 754 \\ -236 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 8442 \\ -1876 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 5630 \\ -1752 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 5342 \\ -3647 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 7111 \\ -5982 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 6031 \\ -2899 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 41573 \\ -4846 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 36154 \\ -9038 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 46124 \\ -9762 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 54\,751 \\ - 7\,896 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 72\,450 \\ - 31\,924 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 81\,692 \\ - 53\,908 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 92\,163 \\ - 48\,517 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 171\,234 \\ - 82\,169 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 102\,085 \\ - 36\,526 \\ \hline \end{array}$$

Answers to Exercise One

a) $10\,000 - 7\,000 = 3\,000$

b) $71\,000 - 8\,000 = 63\,000$

c) $700 - 400 = 300$

d) $800 - 200 = 600$

e) $8\,000 - 2\,000 = 6\,000$

f) $6\,000 - 2\,000 = 4\,000$

g) $5\,000 - 4\,000 = 1\,000$

h) $7\,000 - 6\,000 = 1\,000$

i) $6\,000 - 3\,000 = 3\,000$

j) $42\,000 - 5\,000 = 37\,000$

k) $36\,000 - 9\,000 = 27\,000$

l) $46\,000 - 10\,000 = 36\,000$

m) $55\,000 - 8\,000 = 47\,000$

n) $70\,000 - 30\,000 = 40\,000$

o) $80\,000 - 50\,000 = 30\,000$

p) $90\,000 - 50\,000 = 40\,000$

q) $170\,000 - 80\,000 = 90\,000$

r) $100\,000 - 40\,000 = 60\,000$

Estimating Answers in Subtraction Word Problems

When you are solving word problems, **an estimate tells you if your answer makes sense.** You can use your estimate to help you check your answers. If your answer and the estimate are not close, then you know that you should subtract your numbers again.

Exercise Two

Estimate the following answers. Be sure to round to the largest place value possible before adding or subtracting. Remember to circle the information and underline what is being asked. Check your work using the answer key at the end of the exercise.

Example:

On a recent petition about sales tax, Mulan had 2 865 people sign. Arnav had 1 564 people sign the petition. Estimate how many more people Mulan had sign than Arnav.

On a recent petition about sales tax, Mulan had 2 865 people sign. Arnav had 1 564 people sign the petition. Estimate how many more people Mulan had sign than Arnav.

$$\begin{array}{r} 2\ 865 \\ - 1\ 564 \\ \hline \end{array} \qquad \textbf{Estimate:} \qquad \begin{array}{r} 3\ 000 \\ - 2\ 000 \\ \hline 1\ 000 \end{array}$$

Mulan had 1 000 more people sign the petition.

- a) On Tuesday, a coffee shop had sales of \$8 523. On Wednesday, the same coffee shop had sales of \$6 914. Estimate the difference between Tuesday's sales and Wednesday's sales.

b) Last week, 4 931 passengers used the ABE Taxi Company. This week, there were 3 491 passengers. Estimate how many more passengers used ABE Taxi Company last week.

c) In Japan, people chew 52 700 tons of gum. In Russia, people chew 25 700 tons of gum. Estimate the how many more tons of gum the Japanese chew.

d) In Colombia there are 1 897 bird species. In China, there are 1 319 bird species. Estimate how many more bird species there are in Colombia.

- e) The whale shark weighs 30 500 kilograms. The basking shark weighs 9 258 kilograms. Estimate how much more the whale shark weighs.
- f) In India there were 155 204 post offices in 2007. In China there were 59 886 post offices. Estimate the difference.
- g) By 2008, the Montreal Canadiens had played the most games 5 792. The Buffalo Sabres had played 2 952. Estimate how many more games the Montreal Canadiens had played.

- h) In 2006, the population of Kelowna was 162 276. The population of Prince George was 83 225. Estimate how many more people live in Kelowna in 2006.

Answers to Exercise Two

a) $\$9\,000 - \$7\,000 = \$2\,000$

c) $50\,000 - 30\,000 = 20\,000$ tons

e) $31\,000 - 9\,000 = 22\,000$ kilograms

g) $6\,000 - 3\,000 = 3\,000$ games

b) $5\,000 - 3\,000 = 2\,000$ passengers

d) $2\,000 - 1\,000 = 1\,000$ species

f) $160\,000 - 60\,000 = 100\,000$ post offices

h) $160\,000 - 80\,000 = 80\,000$ people

Topic E: Self-Test**Mark****/18****Aim 14/18**

A. Estimate the differences. Show your work.**12 marks**

a)
$$\begin{array}{r} 73 \\ - 34 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 67 \\ - 18 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 896 \\ - 385 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 467 \\ - 214 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 4\ 071 \\ - 2\ 986 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 5\ 946 \\ - 4\ 281 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 57\ 201 \\ - 5\ 892 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 23\ 006 \\ - 4\ 999 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 49\ 053 \\ - 28\ 954 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 36\ 174 \\ - 16\ 925 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 86\ 502 \\ - 26\ 590 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 943\ 982 \\ - 721\ 354 \\ \hline \end{array}$$

B. Estimate each of the following word problems.

6 marks

Be sure to include the unit of measure in your answer.

(2 marks each)

Be sure to circle information and underline what is being asked.

a) A magazine has 54 823 readers. Last year the magazine had 26 876 readers. By how much did number of readers increase?

b) In 2009, the number of marriages per year in Japan was 964 702. The number of marriages per year in Egypt was 525 412. How many more marriages were there in Japan than Egypt?

c) In 2010, in France there were 235 846 people with the last name Martin. There were 78 177 people with the last name Moreau. How many more Martins were there?

Answers to Topic E Self-Test

A.

- a) 40 b) 50 c) 500 d) 300 e) 1 000
f) 2 000 g) 51 000 h) 18 000 i) 20 000 j) 20 000
k) 60 000 l) 200 000

B.

- a) 20 000 readers b) 500 000 marriages c) 160 000 Martins

Topic F: Problem Solving

Why are you studying mathematics?

Some of you are taking math because you “have to...”, but we hope you all want to have math skills to help you in your jobs, in job training, and in your everyday life. Numbers are an important part of our lives – we are surrounded by numbers.

Numbers are not often by themselves or set up neatly on a page for us to add or subtract. Numbers are usually in the middle of sentences and mixed in with other numbers. Sorting out the numbers you want and deciding what to do with those numbers is called **problem solving**.

You are going to learn five problem solving steps that will be useful in **all** your math work in courses, in jobs, and in your everyday life.

Problem Solving Steps

Step 1:

READ or **LISTEN TO** the problem carefully. **UNDERSTAND** the problem. Are there words that help you imagine what is happening? Can you draw a picture or diagram to show what is happening? Can you say the problem in your own words? What is the **QUESTION**? Underline it.

Step 2:

What does the problem tell you? What do you know? Write down or **circle** the **INFORMATION** you have. Often you have more information than you need. Think about the question you need to answer and use only the information that will help you answer that question. What do you want to find out?

Step 3:

What must you do with the information to answer the question? What **ARITHMETIC OPERATION** should you use – addition, subtraction, multiplication or division? You will be learning **key words** and **patterns** that will help you choose the correct operation. Write an equation for the problem. An equation is a number sentence such as

$$12 + 5 = \underline{\hspace{2cm}}$$

Step 4: **ESTIMATE** the answer.

- Round the numbers so you can work with them quickly.
- Use the operation you chose in Step 3 and come to a quick answer.
- Does this estimated answer make sense? Does it answer the question in the problem? **THINK** about this before you do Step 5.

Step 5: **SOLVE** the problem using the **actual** numbers.

- Check your arithmetic calculations.
- Compare your result to your estimated answer.
- Reread the problem. Does your answer make sense?
- Write a sentence answer to the problem.

You must always say **what** the numbers are counting. “He has 4,” means nothing. We need to know 4 what... 4 children? 4 dogs? 4 dollars? These are called the **units**.

Some abbreviations used with numerals:

kilometre	km	metre	m
centimetre	cm	kilogram	kg
gram	g	litre	L
hour	h	minute	min

Now study the three example problems that show the five steps.

Example A:

Jorge earned \$165 last week and \$142 this week in his job pumping gas at the service station. He spent \$15 on his girlfriend's gift. How much did he earn pumping gas?

Step 1: **READ. UNDERSTAND THE PROBLEM. FIND THE QUESTION.**
Underline it.

How much did Jorge earn pumping gas?

Step 2: Find the **NEEDED INFORMATION**. Circle it.
Jorge earned \$165 and \$142.

The information about his girlfriend's gift has nothing to do with finding out how much he earned.

Step 3: What **ARITHMETIC OPERATION** to use?
*We are putting together two amounts. That is **addition**.*

The equation: $\$165 + \$142 = \text{what he earned.}$

Step 4: **ESTIMATE.**
 $\$165 \approx \170 or $\$200$
 $\underline{+ \$142} \approx \underline{\$140}$ or $\underline{\$100}$
 $\$310$ $\$300$

*Is about \$300 a reasonable answer to the question? Is it sensible to earn \$300 for two weeks of pumping gas? Probably. \$3 000 would **NOT** be sensible, and \$30 would **NOT** be sensible.*

Step 5: **SOLVE, CHECK, WRITE A SENTENCE ANSWER.**

$\$165$	<i>Check by adding again. ✓</i>
$\underline{+ \$142}$	<i>Is \$307 close to the estimate? ✓</i>
$\$307$	<i>Make sense? ✓</i>

Jorge earned \$307 pumping gas.

Example B:

The town of Gloryville had a population of 4 206 people before the mill had a big lay-off in May 2007. Since then 858 people have moved away. Find the population of Gloryville now.

Step 1: READ, UNDERSTAND THE PROBLEM, FIND THE QUESTION.
Underline it.

Find the population of Gloryville now.

Step 2: CIRCLE NEEDED INFORMATION

4 206 people before
858 people moved away

The date of the lay-off is not needed to answer the question.

Step 3: OPERATION
*One amount is being taken away. That is **subtraction**.*
Equation: $4\ 206 - 858 =$ people in Gloryville now.

Step 4: ESTIMATE
 $4\ 206 \approx 4\ 000$ or $4\ 200$
 $- 858 \approx 1\ 000$ or $- 900$
 $3\ 000 \quad 3\ 300$

Step 5: SOLVE, CHECK, WRITE SENTENCE ANSWER

$$\begin{array}{r} 11\ 9 \\ 3\ 1\ 16 \\ \underline{4\ 206} \\ - 858 \\ \hline 3\ 348 \end{array} \quad \text{check:} \quad \begin{array}{r} 1\ 1\ 1 \\ 3\ 348 \\ + 858 \\ \hline 4\ 206 \quad \checkmark \end{array}$$

Close to estimate? ✓
Makes sense? ✓

Gloryville has a population now of 3 348 people.

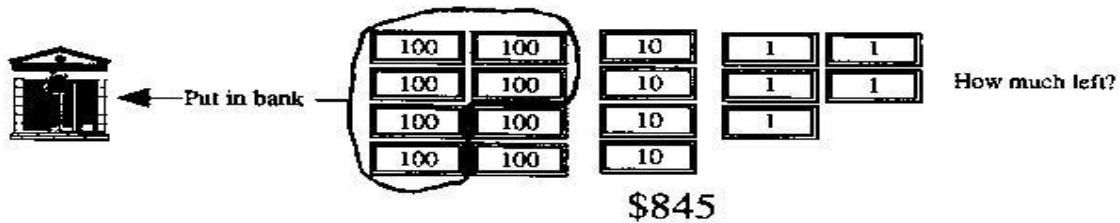
Example C:

Paul works at a lumber mill and is paid every two weeks. He has an account at the bank. Today he got a cheque for \$845. He and his wife decided to deposit \$600 in the account and keep the rest of the money out for a weekend trip. How much money did Paul and his wife keep out for the weekend trip?

Step 1: QUESTION

How much money did Paul and his wife keep for the weekend trip?

Can I draw a picture or diagram?



Step 2: NEEDED INFORMATION

*Paul got a cheque for \$845 for two weeks work.
He and his wife decided to put \$600 in their account.*

Step 3: OPERATION

*One amount is being taken away. That is **subtraction**.
Equation: $\$845 - \$600 = \text{money left over for weekend trip}$*

Step 4: ESTIMATE

$$\begin{array}{r} \$845 \approx 850 \\ - \$600 \approx 600 \\ \hline \$250 \end{array}$$

Step 5: SOLVE, CHECK, WRITE SENTENCE ANSWER

$$\begin{array}{r} \$845 \\ - \$600 \\ \hline \$245 \end{array} \quad \text{check:} \quad \begin{array}{r} \$250 \\ + \$600 \\ \hline \$845 \quad \checkmark \end{array}$$

*Close to estimate? \checkmark
Makes sense? \checkmark*

Paul and his wife have \$245 for the weekend trip.

Addition Problems

The problems in this section all use the addition operation to find the solution (the answer to the problem). Addition problems give two or more amounts that must be put together (added). When you read the problems, pay special attention to **key words** and **patterns** that will help you to recognize other addition problems.

Key words that point to ADDITION		
sum	total	altogether
combine	entire	complete
	in all	

Exercise One

Do these problems by following the five problem solving steps. It is good practice to write down each step while you are learning this method. Check your work using the answer key at the end of the exercise.

- a) It was raining so Gita decided to bake several batches of cookies and freeze them. She made 75 chocolate chip cookies, 96 of her son's favourite ginger snaps, and 42 fancy "Birds' nest" cookies for when she had company. How many cookies did Gita bake altogether?

Step 1: What is the **question**? Underline it.

Step 2: What **information** are you given that you **need** to solve the problem? Circle it.

Step 3: What **arithmetic operation** should you use? *addition* Why?

Step 4: **Estimate** the answer using rounded numbers.

Step 5: **Solve, check, and write a sentence answer.**

- b) Levi wanted to paint his apartment and needed to buy some supplies. Brushes cost \$10, sandpaper cost \$4, a paint roller and tray cost \$9 and the paint was \$55. How much did it cost for all the paint supplies?

Step 1: What is the **question**? Underline it.

Step 2: What **information** are you given that you **need** to solve the problem?
Circle it.

Step 3: What **arithmetic operation** should you use? *addition* Why?

Step 4: **Estimate** the answer using rounded numbers.

Step 5: **Solve, check, and write a sentence answer.**

- c) Altogether, the college has 475 students in the Adult Basic Education department, 320 University Transfer students, 64 students in the Early Childhood Education program, 232 students in the Forestry department, and 125 students in trades courses. How many students are at the college?

Step 1: What is the **question**? Underline it.

Step 2: What **information** are you given that you **need** to solve the problem?
Circle it.

Step 3: What **arithmetic operation** should you use? *addition* Why?

Step 4: **Estimate** the answer using rounded numbers.

Step 5: **Solve, check, and write a sentence answer.**

- d) Zhou works part-time at the daycare centre. Last month she worked every week. The first week she worked 24 hours, 36 hours the second week, 29 hours the third week, and only 17 hours in the fourth week. Give the total number of hours that Zhou worked last month.

Step 1: What is the **question**? Underline it.

Step 2: What **information** are you given that you **need** to solve the problem?
Circle it.

Step 3: What **arithmetic operation** should you use? *addition* Why?

Step 4: **Estimate** the answer using rounded numbers.

Step 5: **Solve, check, and write a sentence answer.**

The rest of the problems in this exercise just ask you for the estimate and the actual solution. You must still follow all five steps but you do not have to write everything down. Remember that the solution to problems must include the units (what is being counted) and should be written in a sentence answer.

- e) September is hard on the family budget! Amul figured they spent \$275 for clothes and shoes for their two little daughters, \$43 for school supplies, \$24 for haircuts, and \$130 to enroll them in the Figure Skating Club. How much has Amul spent getting his children ready for school and skating?

Estimation:

Actual Solution:

- f) The sign in the elevator says “1200 kg maximum weight”. Can the elevator hold all these large football players safely? Sean weighs 91 kg, Raja is 114 kg, Eyota is a heavyweight at 159 kg. Kiefer is even heavier at 168 kg, the two fullbacks weigh 135 kg and 148 kg, and the quarterback Juan is a muscular 87 kg. Find their combined weight to see if they are all safe in the elevator.

Estimation:

Actual Solution:

- g) On their holidays, the Matthews family drove to Saskatchewan from their home in Langley. They drove 620 km the first day, 810 km the second day, and only drove 350 km the next day because they went to Head Smashed-in Buffalo Jump Museum. On the fourth day, they drove a long 1 208 km. How many kilometres did they drive on their trip to Saskatchewan?

Estimation:

Actual Solution:

Answers to Exercise One (The wording in the sentences will vary, but this is the idea.)

- a) 1) How many cookies altogether?
2) She made 75, 96, and 42 cookies.
3) All the amounts have to be put together to find a total.
4) $80 + 100 + 40 = 220$ cookies
5) $75 + 96 + 42 = 213$ cookies Gita baked 213 cookies altogether.
- b) 1) How much did it cost for all the paint supplies?
2) He paid \$10, \$4, \$9 and \$55.
3) All the amounts have to be put together to find a total.
4) Rounding one digit numbers isn't too helpful, but $\$10 + \$0 + \$10 + \$60 = \$80$
5) $\$10 + \$4 + \$9 + \$55 = \$78$ Levi paid \$78.
- c) 1) How many students at the college?
2) There are 475, 320, 232, and 125 students.
3) You must find a total.
4) $500 + 300 + 100 + 200 + 100 = 1\ 200$ students
5) $475 + 320 + 64 + 232 + 125 = 1\ 216$ students. The college has 1 216 students.
- d) 1) How many hours did Zhou work last month?
2) She worked 24, 36, 29, and 17 hours.
3) You are looking for an amount altogether.
4) $20 + 40 + 30 + 20 = 110$ hours
5) $24 + 36 + 29 + 17 = 106$ hours Zhou worked 106 hours last month.
- e) \$472 altogether f) 902 kg altogether; safe g) 2 988 km

Subtraction Problems

These problems will give you a change to “get the feel” of subtraction problems.

Subtraction problems tell you an amount and then take something away from that amount. Money might be spent, saved, or deducted (taken off), people might move away, items might be sold or lost. These types of subtraction problems are quite easy to recognize.

A more difficult type of subtraction problem **compares two amounts**. You will be asked to **find the difference** between the amounts. Subtract to find the difference. These problems might ask you “how much more?”, “how much less?”, “how many fewer?”, “how much farther?”, “how much did it increase (go up)?”, “what is the decrease (amount it went down)?” You might also have to find the age of something by comparing the dates.

Key Words that point to SUBTRACTION

difference balance amount left the saving

how much more (or greater, or farther)

how much less (or fewer, or smaller)

how old, find the age

Exercise Two

Use the five problem steps to solve these problems. Write down each step for the first three problems. Check your work using the answer key at the end of the exercise.

- a) Only 368 people went to the movie theatre on Friday night, but on Saturday 756 went to see the new comedy movie they were showing. How many more people went to the theatre on Saturday than on Friday?

Step 1: What is the **question**? Underline it.

Step 2: What **information** are you given that you **need** to solve the problem?
Circle it.

Step 3: What **arithmetic operation** should you use? *subtraction* Why?

Step 4: **Estimate** the answer using rounded numbers.

Step 5: **Solve, check, and write a sentence answer.**

- b) The highway construction started in 2004 and it was finished in 2010. How long did the construction take?

Step 1: What is the **question**? Underline it.

Step 2: What **information** are you given that you **need** to solve the problem?
Circle it.

Step 3: What **arithmetic operation** should you use? *subtraction* Why?

Step 4: **Estimate** the answer using rounded numbers. In a question like this, an estimation using rounded numbers is not useful because the numbers are too similar and would round to the same number. Instead, think about the question carefully and figure out an approximate answer in your head.

Step 5: **Solve, check, and write a sentence answer.**

- c) Aimee's gross pay was \$1 656, but she had \$331 of deductions. What is her net pay? (*Gross pay* is the amount we earn before anything is taken off. *Net pay* is the amount we take home after taxes, pension, employment insurance, etc. have been deducted.)

Step 1: What is the **question**? Underline it.

Step 2: What **information** are you given that you **need** to solve the problem?
Circle it.

Step 3: What **arithmetic operation** should you use? *subtraction* Why?

Step 4: **Estimate** the answer using rounded numbers.

Step 5: **Solve, check, and write a sentence answer.**

- d) Mike and Ann want to can 240 jars of fruit this year. They have already canned 165 jars. How many more jars do they need to do?

Estimation:

Actual Solution:

- e) Jian has purchased a used car for \$3599. He has paid \$450 so far. How much more money does he owe?

Estimation:

Actual Solution:

- f) In 1956 the population of the town was 10 874. Many people left after the dam construction was finished. The population in 1989 was only 7 892 people. How much less was the population in 1989 than in 1956?

Estimation:

Actual Solution:

Answers to Exercise Two

- a) 1) How many more people at the theatre on Saturday than on Friday?
2) 368 people on Friday; 756 on Saturday
3) You must find the difference between two amounts.
4) $800 - 400 = 400$ more people on Saturday
5) $756 - 368 = 388$ more people on Saturday.
- b) 1) How long did the construction take?
2) Started in 2004; ended in 2010.
3) Find the difference between the two dates.
4) Think “from 2004 to 2010 – about 5 years”
5) $2010 - 2004 = 6$ years for the road construction
- c) 1) What is Aimee’s net pay?
2) Her gross pay was \$1 656 and she had \$331 taken off (deducted).
3) Subtract to find how much is left.
4) $\$1\,700 - \$300 = \$1\,400$
5) $\$1\,656 - \$331 = \$1\,325$ net pay
- d) 75 jars e) \$3 149 still owed f) 2 982 people less

Mixed Addition and Subtraction Problems

Exercise Three

Use the 5 problem solving steps. Look for key words and patterns to help you choose the correct operation. Estimate the answer using rounded numbers **if** the numbers have 2 digits or more. Check your work using the answer key at the end of the exercise.

- a) Enrico worked 37 hours one week and 26 hours the next week. How many hours did he work?

Estimation:

Actual Solution:

- b) Myung-Hee had \$85. She spent \$37 for groceries. How much did she have left?

Estimation:

Actual Solution:

- c) Ann bought 25 kg of potatoes. She used 13 kg the first week. How much did she have left?

Estimation:

Actual Solution:

- d) The sign in a furniture store read, "\$35 off all chairs." How much will a chair cost that was \$125 before the sale?

Estimation:

Actual Solution:

- e) Guillaume bought a pair of jeans for \$29 at a sale. When he got home, he found the price tag on the jeans had been \$48. How much did Guillaume save?

Estimation:

Actual Solution:

- f) British Columbia has an area of 947 800 square kilometres. The area of Alberta is 666 190 square kilometres. BC is how much larger than Alberta?

Estimation:

Actual Solution:

- g) Maxine paid \$26 for an electric iron and \$39 for an ironing board. How much did she pay for both?

Estimation:

Actual Solution:

- h) Ang bought a used TV set for \$125. She made a down payment of \$40. How much does she still owe on the set?

Estimation:

Actual Solution:

- i) Paulo had \$325 in the bank. He wrote a cheque for \$76. How much money did he have left in the bank?

Estimation:

Actual Solution:

- j) Mizu weighs 99 kg. Akula weighs 81 kg. How much heavier is Mizu than Akula?

Estimation:

Actual Solution:

- k) Kenji has three children. One weighs 25 kg, another weighs 20 kg, and the last weighs 17 kg. How much do they weigh together?

Estimation:

Actual Solution:

- l) Rafael bought a boat priced at \$8 400. He was given \$1 250 as a trade-in on his old boat. How much does he owe on the new boat?

Estimation:

Actual Solution:

- m) Last week Luis earned \$212. The week before he earned \$198. This week he earned \$133. How much did he earn in all?

Estimation:

Actual Solution:

- n) Jakob went on a trip of 739 km. The first day he drove 561 km. How many kilometres did he have left to drive?

Estimation:

Actual Solution:

- o) In 2005 Jacques' net income was \$29 675. In 2006 his net income was \$30 207. How much more did he earn in 2006?

Estimation:

Actual Solution:

Answers to Exercise Three

- | | | |
|-----------------------|-------------------------|------------------------------|
| a) 63 hours | b) \$48 left | c) 12 kg of potatoes left |
| d) \$90 for the chair | e) \$19 saved | f) 281 610 square kilometres |
| g) \$65 in all | h) \$85 still owed | i) \$249 left in the bank |
| j) 18 kg heavier | k) 62 kg altogether | l) \$7 150 still owed |
| m) \$543 in all | n) 178 km left to drive | o) \$532 more |

Two-Operation Questions

Sometimes you may need to use two operations to solve a question. We work from left to right when solving questions that involve two operations. If addition is first, you must do the addition first then the subtraction. If subtraction is first, you must do the subtraction first and then do the addition.

Example A: $342 + 325 - 146 =$

Step 1:

$$\begin{array}{r} 342 \\ + 325 \\ \hline 667 \end{array}$$

Step 2: Use your answer and subtract 146.

$$\begin{array}{r} 667 \\ - 146 \\ \hline 521 \end{array}$$

$$342 + 325 - 146 = 521$$

Example B: $475 - 284 + 362 =$

Step 1:

$$\begin{array}{r} 475 \\ - 284 \\ \hline 191 \end{array}$$

Step 2: Use your answer and add 362.

$$\begin{array}{r} 191 \\ + 362 \\ \hline 553 \end{array}$$

$$475 - 284 + 362 = 553$$

Exercise Four

Find the sum or difference for each question. Check your work using the answer key at the end of the exercise.

a) $312 + 541 - 135 =$

b) $427 + 231 - 384 =$

c) $687 - 434 + 256 =$

d) $754 - 576 + 393 =$

e) $1\,456 + 218 - 295 =$

f) $2\,461 + 723 - 349 =$

g) $3\,857 - 665 + 1\,234 =$

h) $4\,367 - 843 + 5\,679 =$

i) $5\,247 + 2\,216 - 4\,673 =$

j) $1\,285 + 4\,672 - 1\,401 =$

k) $7\,354 - 4\,038 + 2\,348 =$

l) $4\,187 - 2\,574 + 1\,846 =$

$$\text{m)} \quad 5\,314 + 7\,053 - 597 =$$

$$\text{n)} \quad 4\,315 + 3\,197 - 2\,106 =$$

$$\text{o)} \quad 46\,124 - 9\,762 + 2\,534 =$$

$$\text{p)} \quad 70\,534 - 7\,689 + 1\,824 =$$

Answers to Exercise Four

a) 718	b) 274	c) 509	d) 571	e) 1 379	f) 2 835	g) 4 426
h) 9 203	i) 2 790	j) 4 556	k) 5 664	l) 3 459	m) 11 770	n) 5 406
o) 38 896	p) 64 669					

Two-Operation Problems

Sometimes you may need to use more than one operation to solve a word problem or a real-life problem.

Example A: Janet bought a submarine sandwich for \$5, a soft drink for \$1, and some carrot cake for \$3. She gave the cashier a twenty dollar bill. How much money did she get back as change?

Step 1: **Question** – *How much change from \$20?*

Step 2: **Information** – *Spent \$5 and \$1 and \$3. Gave cashier \$20.*

Step 3: **Operations**

1. *Add the amounts she spent to find the total.*

$$\$5 + \$1 + \$3 = \underline{\hspace{2cm}}$$

2. *Subtract the amount she spent from \$20.*

$$\$20 - \text{total of what she spent} = \text{change}$$

Step 4: **Estimate**

Numbers are only one digit so do not round them. But a quick add tells you that her change will be about \$10.

Step 5: **Solve**

1. $\$5 + \$1 + \$3 = \9 total spent

2. $\$20 - \$9 = \$11$

Janet will get \$11 in change.

Exercise Five

Use the 5 problem solving steps. Look for key words and patterns to help you choose the correct operation. Estimate the answer using rounded numbers **if** the numbers have 2 digits or more. Show all your work. Check your work using the answer key at the end of the exercise.

- a) Maureen weighed 72 kg and decided to go on a diet for her New Year's Resolution. She lost 3 kg in January, 2 kg in February, and 4 kg in March. How much did she weigh after her three month diet?

Estimation:

Actual Solution:

- b) The local Girl Guides and Brownies had a goal to sell 2 850 boxes of Girl Guide cookies. In the first week the Brownies sold 975 boxes and the Guides sold 1 138 boxes. How many more boxes do they need to sell to reach their goal?

Estimation:

Actual Solution:

- c) Pat is ready to start first year college; she received a Passport to Education award from the provincial government which was \$625. She got a Rotary Club Scholarship of \$250 and a science scholarship of \$400. Her first year's tuition and books are going to cost \$2 000. Pat will use all her awards and scholarships. How much more money will she need to pay?

Estimation:

Actual Solution:

- d) The elementary school had 83 girls and 95 boys enrolled in September. Five of the girls and three of the boys moved away in September. How many children were still enrolled in the school at the end of September?

Estimation:

Actual Solution:

- e) Franco is on a 1 200 calorie-a-day diet. He had 320 calories at breakfast and 468 calories at lunch. How many calories does he have left for dinner?
- f) Lilo had a total of 150 hats in four boxes. In box one there were 72 hats. In box two, there were 28 hats. In box three, there were 47 hats. How many hats were in box four?
- g) Miguel wanted to buy a Blue ray player for \$225. He got \$65 for his birthday. He won \$75. How much more money does Miguel need?

- h) Kehara and Omar decided to visit their grandmother who lives 160 kilometres away. They travelled 50 kilometres and stopped for gas. They travelled another 30 kilometres and stopped for lunch. How much farther is it to their grandmother's house?
- i) Kuen had \$7 342 in his bank account. He decided to buy a new television for \$1 139. Kuen was able to save another \$697. How much does Kuen have in his bank account?
- j) Giles wishes to buy three gifts that cost \$15, \$9 and \$12. He has \$11 of the money he needs. How much more money does he need to earn in order to buy the gifts?

k) Colette bought items costing \$34, \$19, \$65 and \$129. She used a coupon worth \$75. How much money does she still owe?

l) Sahale had 25 metres of fencing. He wanted to fence his garden that was 53 metres long and 38 metres wide. How much more fencing does Sahale need to buy? (**Hint:** To put a fence around means the perimeter. Draw a picture before you begin.)

Answers to Exercise Five

- | | | | |
|-----------------|------------------------------|---------------|--------------------------------|
| a) 63 kg | b) 737 boxes of cookies more | c) \$725 more | d) 170 children still enrolled |
| e) 412 calories | f) 3 hats | g) \$85 more | h) 80 kilometres |
| i) \$6 900 | j) \$25 more | k) \$172 | l) 157 metres |

Topic F: Self-Test

Mark /14

Aim 12/14

A. Solve these problems. Show all your work. Give yourself one mark for the correct method and one mark for the correct answer. 14 marks

- a) Alice weighed 86 kg. She went on a diet. Now she weighs 69 kg. How much did she lose?

Estimation:

Actual Solution:

- b) Jacques spent \$49 on a pair of jeans, \$18 for a shirt, \$12 for a belt, and \$3 for socks. How much did he spend altogether?

Estimation:

Actual Solution:

- c) A bookshelf had 94 books on the top shelf, 86 on the middle shelf, and 79 on the bottom shelf. How many books are there on the three shelves?

Estimation:

Actual Solution:

- d) Mahad bought a new car for \$9 989. He traded in his old car for \$1 785. How much more was the new one than the value of his trade-in?

Estimation:

Actual Solution:

e) Kian and Toran picked apples for their uncle. Kian picked 509 kg and Toran picked 436 kg. (4 marks)

i) How many more kilograms of apples did Kian pick than Toran?

Estimation:

Actual Solution:

ii) How many kilograms of apples did they pick together?

Estimation:

Actual Solution:

- f) During an election, Dominique counted 4 721 votes and 8 956 votes. The number of spoiled ballots was 1 639. How many were good votes? (This question is worth 4 marks).

Answers to Topic F Self-Test

a) $86 \text{ kg} - 69 \text{ kg} = 17 \text{ kg}$

b) $\$49 + \$18 + \$12 + \$3 = \$82$

c) $94 + 86 + 79 = 259$ books

d) $\$9\,989 = \$1\,785 = \$8\,204$

e) i) $509 \text{ kg} - 436 \text{ kg} = 73 \text{ kg more}$

ii) $509 \text{ kg} + 436 \text{ kg} = 945 \text{ kg altogether}$

f) 12038 votes

Unit 3 Review - Subtraction

You will now practice all of the skills you learned in Unit 3. Check your work using the answer key at the end of the review

A. Find the differences.

a)
$$\begin{array}{r} 58 \\ -24 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 99 \\ -65 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 98 \\ -75 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 87 \\ -34 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 45 \\ -21 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 76 \\ -35 \\ \hline \end{array}$$

B. Find the differences.

a)
$$\begin{array}{r} 995 \\ -423 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 987 \\ -316 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 579 \\ -458 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 877 \\ -602 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 468 \\ -432 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 686 \\ -271 \\ \hline \end{array}$$

C. Find the differences.

a)
$$\begin{array}{r} 1\,265 \\ -541 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 4\,587 \\ -534 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 6\,889 \\ -2\,506 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 7\,936 \\ - 5\,104 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 62\,589 \\ - 1\,375 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 54\,567 \\ - 3\,253 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 44\,293 \\ - 13\,701 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 86\,477 \\ - 16\,216 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 37\,516 \\ - 21\,413 \\ \hline \end{array}$$

D. Rewrite each question in columns and find the differences.

$$\text{a)} \quad 968 - 343 =$$

$$\text{b)} \quad 865 - 432 =$$

$$\text{c)} \quad 7\,482 - 5\,061 =$$

$$\text{d)} \quad 11\,589 - 5\,326 =$$

$$\text{e)} \quad 97\,383 - 42\,362 =$$

$$\text{f)} \quad 109\,861 - 58\,240 =$$

E. Borrow from the number in the shaded box.

a)

	ten thousands	thousands	hundreds	tens	ones
392					

b)

	ten thousands	thousands	hundreds	tens	ones
821					

c)

	ten thousands	thousands	hundreds	tens	ones
6 739					

d)

	ten thousands	thousands	hundreds	tens	ones
4 528					

e)

	ten thousands	thousands	hundreds	tens	ones
24 986					

f)

	ten thousands	thousands	hundreds	tens	ones
47 182					

F. Borrow from the number in the shaded box.

a)

	ten thousands	thousands	hundreds	tens	ones
302					

b)

	ten thousands	thousands	hundreds	tens	ones
706					

c)

	ten thousands	thousands	hundreds	tens	ones
7 019					

d)

	ten thousands	thousands	hundreds	tens	ones
5 034					

e)

	ten thousands	thousands	hundreds	tens	ones
40 154					

f)

	ten thousands	thousands	hundreds	tens	ones
20 428					

g)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
904 539						

h)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
406 217						

G. Find the differences.

a)
$$\begin{array}{r} 54 \\ - 5 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 63 \\ - 6 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 82 \\ - 9 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 25 \\ - 17 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 92 \\ - 53 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 58 \\ - 39 \\ \hline \end{array}$$

H. Find the differences.

a)
$$\begin{array}{r} 172 \\ - 16 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 263 \\ - 59 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 974 \\ - 65 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 629 \\ - 349 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 956 \\ - 392 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 754 \\ - 636 \\ \hline \end{array}$$

I. Find the differences. Check your answers using addition.

a)
$$\begin{array}{r} 83 \\ - 15 \\ \hline \end{array}$$
 Check:

b)
$$\begin{array}{r} 639 \\ - 484 \\ \hline \end{array}$$
 Check:

c)
$$\begin{array}{r} 1\ 041 \\ - 436 \\ \hline \end{array}$$
 Check:

d)
$$\begin{array}{r} 7\ 317 \\ - 5\ 293 \\ \hline \end{array}$$
 Check:

e)
$$\begin{array}{r} 45\ 398 \\ - 2\ 737 \\ \hline \end{array}$$
 Check:

f)
$$\begin{array}{r} 84\ 902 \\ - 24\ 290 \\ \hline \end{array}$$
 Check:

J. Find the differences.

a)
$$\begin{array}{r} 251 \\ - 84 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 286 \\ - 98 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 256 \\ - 79 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 427 \\ - 328 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 970 \\ - 476 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 534 \\ - 269 \\ \hline \end{array}$$

K. Find the differences.

$$\begin{array}{r} \text{a)} \quad 3\,614 \\ - 923 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 5\,132 \\ - 747 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 1\,263 \\ - 486 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 6\,163 \\ - 2\,178 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 6\,311 \\ - 3\,784 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 7\,234 \\ - 2\,659 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 71\,236 \\ - 7\,852 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 34\,529 \\ - 4\,868 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 57\,389 \\ - 3\,894 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 91\,821 \\ - 76\,953 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 81\,153 \\ - 43\,569 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 90\,763 \\ - 34\,287 \\ \hline \end{array}$$

L. Find the differences.

a)
$$\begin{array}{r} 403 \\ - 16 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 800 \\ - 75 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 600 \\ - 124 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 804 \\ - 326 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 901 \\ - 258 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 8\ 035 \\ - 652 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 3\ 600 \\ - 1\ 135 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 7\ 065 \\ - 6\ 130 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 40\ 862 \\ - 3\ 978 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 50\ 126 \\ - 9\ 238 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 80\ 965 \\ - 67\ 836 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 30\ 642 \\ - 19\ 637 \\ \hline \end{array}$$

M. Rewrite each question in columns and find the difference.

a) $845 - 659 =$

b) $1\ 920 - 731 =$

c) $6\,927 - 2\,765 =$

d) $19\,053 - 8\,954 =$

e) $73\,050 - 36\,174 =$

f) $86\,295 - 46\,049 =$

N. Estimate the differences. Round the numbers before you subtract.

a)
$$\begin{array}{r} 357 \\ - 129 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 3\,546 \\ - 866 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 2\,765 \\ - 249 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 6\,263 \\ - 2\,118 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 63\,947 \\ - 5\,689 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 47\,296 \\ - 21\,592 \\ \hline \end{array}$$

O. Use the 5 problem solving steps. Look for key words and patterns to help you choose the correct operation. Estimate the answer using rounded numbers if the numbers have 2 digits or more.

a) Last Friday, 1 259 students and 339 parents went to the hockey game. How many students and parents were at the game?

b) The Laerdal Tunnel in Norway is the longest road tunnel in the world. It is 24 510 metres long. The Zhongnanshan Tunnel in China is the second longest road tunnel in the world. It is 18 040 metres long. How much longer is the Laerdal Tunnel?

c) Li Chiu bought school clothes for her children. She spent \$46 at the department store, \$40 at the shoe store and \$78 at the discount store. How much did Li spend altogether?

- d) A truck weighed 4 267 kilograms when loaded with dirt. When the truck is empty it weighs 2 189 kilograms. How much did the dirt weigh?

P. Find the sum or difference for each question.

a) $776 + 634 - 478 =$

b) $3\,714 - 819 + 496 =$

c) $7\,413 - 249 + 382 =$

d) $6\,415 + 5\,829 - 1\,756 =$

Q. Use the 5 problem solving steps. Look for key words and patterns to help you choose the correct operation. Estimate the answer using rounded numbers if the numbers have 2 digits or more. Show all your work.

a) Two weeks ago, Van opened a new bank account and deposited \$295. He paid \$146 for his gas bill. Van then deposited \$1 632 in his account. How much money is in his account?

b) Michel has 1 532 metres of fencing. He needs to fence his garden which measures 253 metres long and 187 metres wide. Does he have enough fencing? How much fencing will be left over?

Answers to Unit 3 Review

A.

- a) 34 b) 34 c) 23 d) 53 e) 24 f) 41

B.

- a) 572 b) 671 c) 121 d) 275 e) 36 f) 415

C.

- a) 724 b) 4 053 c) 4 383 d) 2 832 e) 61 214 f) 51 314
 g) 31 192 h) 70 261 i) 16 103

D.

- a) 625 b) 433 c) 2 421 d) 6 263 e) 55 021 f) 51 621

E.

a)

	ten thousands	thousands	hundreds	tens	ones
392			3	9	2
			3	8	12

b)

	ten thousands	thousands	hundreds	tens	ones
821			8	2	1
			8	1	11

c)

	ten thousands	thousands	hundreds	tens	ones
6 739		6	7	3	9
		6	6	13	9

d)

	ten thousands	thousands	hundreds	tens	ones
4 528		4	5	2	8
		4	4	12	8

e)

	ten thousands	thousands	hundreds	tens	ones
24 986	2	4	9	8	6
	2	3	19	8	6

f)

	ten thousands	thousands	hundreds	tens	ones
47 182	4	7	1	8	2
	4	6	11	8	2

F.

a)

	ten thousands	thousands	hundreds	tens	ones
302			3	0	2
			2	10	2
			2	9	12

b)

	ten thousands	thousands	hundreds	tens	ones
706			7	0	6
			6	10	6
			6	9	16

c)

	ten thousands	thousands	hundreds	tens	ones
7 019		7	0	1	9
		6	10	1	9
		6	9	11	9

d)

	ten thousands	thousands	hundreds	tens	ones
5 034		5	0	3	4
		4	10	3	4
		4	9	13	4

e)

	ten thousands	thousands	hundreds	tens	ones
	3	10	1	5	4
	3	9	11	5	4

f)

	ten thousands	thousands	hundreds	tens	ones
20 428	2	0	4	2	8
	1	10	4	2	8
	1	9	14	2	8

g)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
904 539	9	0	4	5	3	9
	8	10	4	5	3	9
	8	9	14	5	3	9

h)

	hundred thousands	ten thousands	thousands	hundreds	tens	ones
406 217	4	0	6	2	1	7
	3	10	6	2	1	7
	3	9	16	2	1	7

G.

- a) 49 b) 57 c) 73 d) 8 f) 39 h) 19

H.

- a) 156 b) 204 c) 909 d) 280 e) 564 f) 118

I.

- a) 68 b) 155 c) 605 d) 2 024 e) 42 661
 f) 60 612

J.

- a) 167 b) 188 c) 177 d) 99 e) 494 f) 265

K.

- a) 2 691 b) 4 385 c) 777 d) 3 985 e) 2 527 f) 4 575
g) 63 384 h) 29 661 i) 53 495 j) 14 868 k) 37 584 l) 56 476

L.

- a) 387 b) 725 c) 476 d) 478 e) 643 f) 7 383
g) 2 465 h) 935 i) 36 884 j) 40 888 k) 13 129 l) 11 005

M.

- a) 186 b) 1 189 c) 4 162 d) 10 099 e) 36 876 f) 40 246

N.

- a) $400 - 100 = 300$ b) $3\,500 - 900 = 2\,600$
c) $2\,800 - 200 = 2\,600$ d) $6\,000 - 2\,000 = 4\,000$
e) $64\,000 - 6\,000 = 58\,000$
f) $50\,000 - 20\,000 = 30\,000$

O.

- a) 1 598 students b) 6 470 metres c) \$164
d) 2 078 kilograms

P.

- a) 932 b) 3 391 c) 7 546 d) 10 488

Q.

- a) \$1 781 b) Yes, 652 metres leftover

CONGRATULATIONS!!

Now you have finished Unit 3.

TEST TIME!

Ask your instructor for the Practice Test for this unit.

Once you've done the practice test,
you need to do the unit 3 test.

Again, ask your instructor for this.

Good luck!

Unit Four

Multiplication

Topic A: Introduction and Multiplication Facts

Multiplication is a fast way to add. Multiplication is used when the amounts to be added are the same.


$$\begin{array}{cccccccccccccccc} \blacklozenge & \blacklozenge & \blacklozenge & & \blacklozenge & \blacklozenge & \blacklozenge & & \blacklozenge & \blacklozenge & \blacklozenge & & \blacklozenge & \blacklozenge & \blacklozenge & & \blacklozenge & \blacklozenge & \blacklozenge & & \blacklozenge & \blacklozenge & \blacklozenge & & \blacklozenge & \blacklozenge & \blacklozenge & & \blacklozenge & \blacklozenge & \blacklozenge & & \blacklozenge & \blacklozenge & \blacklozenge \\ 3 & + & 3 & + & 3 & + & 3 & + & 3 & + & 3 & + & 3 & + & 3 & + & 3 & + & 3 & = & 21 \end{array}$$

How many groups are there? **7**

$$7 \text{ groups of } 3 = 21$$

This can be written as a multiplication equation.

$$7 \times 3 = 21$$

\times is the sign that means to multiply. We often say “times” for this multiplication sign.


$$\begin{array}{cccccccc} \textcircled{\ast} & \textcircled{\ast} & & \textcircled{\ast} & \textcircled{\ast} & & \textcircled{\ast} & \textcircled{\ast} & & \textcircled{\ast} & \textcircled{\ast} \\ 2 & + & 2 & + & 2 & + & 2 & = & 8 \end{array}$$

4 groups of 2 = 8

$$4 \times 2 = 8 \quad \text{say “4 times 2 equals 8” or “4 multiplied by 2 equals 8”}$$

The result of a multiplication is called the **product**.

The numbers that are multiplied together are called **factors**.

$7 \times 3 = 21$ The **factors** are 7 and 3.

The **product** is 21.

Exercise One

For each drawing, write the addition equation and find the total. Then write the multiplication equation that describes the same drawing and find the product. Check your work using the answer key at the end of the exercise.

	Drawing	Addition Equation	Multiplication Equation
a)		$4 + 4 + 4 = 12$	$3 \times 4 = 12$
b)			
c)			
d)			
e)			
f)			
g)			

Answers to Exercise One

- | | | |
|----|--|--------------------|
| a) | $4 + 4 + 4 = 12$ | $3 \times 4 = 12$ |
| b) | $6 + 6 = 12$ | $2 \times 6 = 12$ |
| c) | $3 + 3 + 3 + 3 + 3 = 15$ | $5 \times 3 = 15$ |
| d) | $5 + 5 + 5 + 5 = 20$ | $4 \times 5 = 20$ |
| e) | $8 + 8 + 8 + 8 = 32$ | $4 \times 8 = 32$ |
| f) | $3 + 3 + 3 = 9$ | $3 \times 3 = 9$ |
| g) | $2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 22$ | $11 \times 2 = 22$ |

Exercise Two

For each drawing, write the addition equation and find the total. Then write the multiplication equation that describes the same drawing and find the product. Check your work using the answer key at the end of the exercise.

	Drawing	Addition Equation	Multiplication Equation
a)			
b)			
c)			
d)			
e)			

f)			
g)			







Answers to Exercise Two

- | | | |
|----|--|-------------------|
| a) | $4 + 4 + 4 + 4 + 4 + 4 = 12$ | $6 \times 4 = 24$ |
| b) | $3 + 3 + 3 + 3 + 3 + 3 + 3 = 21$ | $3 \times 7 = 21$ |
| c) | $5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40$ | $5 \times 8 = 40$ |
| d) | $7 + 7 + 7 + 7 + 7 = 35$ | $7 \times 5 = 35$ |
| e) | $6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 + 6 = 54$ | $6 \times 9 = 54$ |
| f) | $3 + 3 + 3 + 3 + 3 = 15$ | $3 \times 5 = 15$ |
| g) | $8 + 8 + 8 + 8 + 8 + 8 + 8 + 8 = 56$ | $8 \times 7 = 56$ |

Exercise Three

For each drawing, write the addition equation and find the total. Then write the multiplication equation that describes the same drawing and find the product. Check your work using the answer key at the end of the exercise.

	Drawing	Addition Equation	Multiplication Equation
a)			

b)			
c)			
d)			
e)			
f)			
g)			

Answers to Exercise Three

- | | | |
|----|--|--------------------|
| a) | $8 + 8 + 8 + 8 + 8 + 8 = 48$ | $6 \times 8 = 48$ |
| b) | $5 + 5 + 5 + 5 + 5 + 5 + 5 = 35$ | $7 \times 5 = 35$ |
| c) | $2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = 16$ | $8 \times 2 = 16$ |
| d) | $6 + 6 + 6 = 18$ | $3 \times 6 = 18$ |
| e) | $5 + 5 + 5 + 5 + 5 = 25$ | $5 \times 5 = 25$ |
| f) | $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 30$ | $10 \times 3 = 30$ |
| g) | $4 + 4 + 4 + 4 + 4 + 4 + 4 = 28$ | $7 \times 4 = 28$ |

Exercise Four

Look at the examples. Complete the chart. Check your work using the answer key at the end of the exercise.

Example A: 2×3 is read as “two times three” and means $3 + 3$

3×2 is read as “three times two” and means $2 + 2 + 2$

	“is read as”	means
5×7	five times seven	$7 + 7 + 7 + 7 + 7$
2×5		
3×4		
5×2		
4×8		
2×7		
3×5		
2×8		
3×9		
6×4		
7×3		

Answers to Exercise Four

	“is read as”	means
5 x 7	five times seven	7 + 7 + 7 + 7 + 7
2 x 5	two times five	5 + 5
3 x 4	three times four	4 + 4 + 4
5 x 2	five times two	2 + 2 + 2 + 2 + 2
4 x 8	four times eight	8 + 8 + 8 + 8
2 x 7	two times seven	7 + 7
3 x 5	three times five	5 + 5 + 5
2 x 8	two times eight	8 + 8
3 x 9	three times nine	9 + 9 + 9
6 x 4	six times four	4 + 4 + 4 + 4 + 4 + 4
7 x 3	seven times three	3 + 3 + 3 + 3 + 3 + 3 + 3



Adding will give the answer to multiplication questions but it is very slow, especially if the numbers are large. The **times tables** are the multiplication facts. You may need to memorize the times tables. You will use the times tables for multiplying, dividing, and working with fractions.

$$0 \times \text{any number} = 0$$

$$\text{any number} \times 0 = 0$$

$0 \times 0 = 0$	$0 \times 0 = 0$
$0 \times 1 = 0$	$1 \times 0 = 0$
$0 \times 2 = 0$	$2 \times 0 = 0$
$0 \times 3 = 0$	$3 \times 0 = 0$
$0 \times 4 = 0$	$4 \times 0 = 0$
$0 \times 5 = 0$	$5 \times 0 = 0$
$0 \times 6 = 0$	$6 \times 0 = 0$
$0 \times 7 = 0$	$7 \times 0 = 0$
$0 \times 8 = 0$	$8 \times 0 = 0$
$0 \times 9 = 0$	$9 \times 0 = 0$
$0 \times 10 = 0$	$10 \times 0 = 0$

$1 \times \text{any number} = \text{that number}$

$$1 \times 0 = 0$$

$$1 \times 1 = 1$$

$$1 \times 2 = 2$$

$$1 \times 3 = 3$$

$$1 \times 4 = 4$$

$$1 \times 5 = 5$$

$$1 \times 6 = 6$$

$$1 \times 7 = 7$$

$$1 \times 8 = 8$$

$$1 \times 9 = 9$$

$$1 \times 10 = 10$$

$0 + 0 = 0$	$2 \times 0 = 0$
$1 + 1 = 2$	$2 \times 1 = 2$
$2 + 2 = 4$	$2 \times 2 = 4$
$3 + 3 = 6$	$2 \times 3 = 6$
$4 + 4 = 8$	$2 \times 4 = 8$
$5 + 5 = 10$	$2 \times 5 = 10$
$6 + 6 = 12$	$2 \times 6 = 12$
$7 + 7 = 14$	$2 \times 7 = 14$
$8 + 8 = 16$	$2 \times 8 = 16$
$9 + 9 = 18$	$2 \times 9 = 19$
$10 + 10 = 20$	$2 \times 10 = 20$

Can you see a pattern? If you forget a multiplication fact with 2, you can just add.

Example: $2 \times 4 = 4 + 4 = 8$

$$2 \times 7 = 7 + 7 = 14$$

The three times table is special. The digits of each product adds up to 3, 6 or 9. You will know your answer is right if you add the digits of the product (the answer for a multiplication question) and the answer is 3, 6 or 9.

$3 \times 0 = 0$	
$3 \times 1 = 3$	3
$3 \times 2 = 6$	6
$3 \times 3 = 9$	9
$3 \times 4 = 12$	$12 \gg 1 + 2 = 3$
$3 \times 5 = 15$	$15 \gg 1 + 5 = 6$
$3 \times 6 = 18$	$18 \gg 1 + 8 = 9$
$3 \times 7 = 21$	$21 \gg 2 + 1 = 3$
$3 \times 8 = 24$	$24 \gg 2 + 4 = 6$
$3 \times 9 = 27$	$27 \gg 2 + 7 = 9$
$3 \times 10 = 30$	$30 \gg 3 + 0 = 3$

Exercise Five

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the zero to three times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

a)
$$\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 1 \\ \times 4 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 0 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 1 \\ \underline{\times 7} \end{array}$$

$$\begin{array}{r} \text{f)} \quad 2 \\ \underline{\times 3} \end{array}$$

$$\begin{array}{r} \text{g)} \quad 0 \\ \underline{\times 4} \end{array}$$

$$\begin{array}{r} \text{h)} \quad 3 \\ \underline{\times 1} \end{array}$$

$$\begin{array}{r} \text{i)} \quad 0 \\ \underline{\times 1} \end{array}$$

$$\begin{array}{r} \text{j)} \quad 1 \\ \underline{\times 8} \end{array}$$

$$\begin{array}{r} \text{k)} \quad 3 \\ \underline{\times 4} \end{array}$$

$$\begin{array}{r} \text{l)} \quad 2 \\ \underline{\times 5} \end{array}$$

$$\begin{array}{r} \text{m)} \quad 3 \\ \underline{\times 5} \end{array}$$

$$\begin{array}{r} \text{n)} \quad 0 \\ \underline{\times 7} \end{array}$$

$$\begin{array}{r} \text{o)} \quad 2 \\ \underline{\times 4} \end{array}$$

$$\begin{array}{r} \text{p)} \quad 1 \\ \underline{\times 9} \end{array}$$

$$\begin{array}{r} \text{q)} \quad 1 \\ \underline{\times 1} \end{array}$$

$$\begin{array}{r} \text{r)} \quad 2 \\ \underline{\times 1} \end{array}$$

$$\begin{array}{r} \text{s)} \quad 0 \\ \underline{\times 3} \end{array}$$

$$\begin{array}{r} \text{t)} \quad 3 \\ \underline{\times 2} \end{array}$$

$$\begin{array}{r} \text{u)} \quad 3 \\ \underline{\times 9} \end{array}$$

$$\begin{array}{r} \text{v)} \quad 1 \\ \underline{\times 10} \end{array}$$

$$\begin{array}{r} \text{w)} \quad 2 \\ \underline{\times 8} \end{array}$$

$$\begin{array}{r} \text{x)} \quad 0 \\ \underline{\times 5} \end{array}$$

$$\begin{array}{r} \text{y)} \quad 2 \\ \underline{\times 9} \end{array}$$

$$\begin{array}{r} \text{z)} \quad 0 \\ \underline{\times 9} \end{array}$$

$$\begin{array}{r} \text{aa)} \quad 3 \\ \underline{\times 10} \end{array}$$

$$\begin{array}{r} \text{bb)} \quad 1 \\ \underline{\times 2} \end{array}$$

Answers to Exercise Five

a) 4	b) 9	c) 4	d) 0	e) 7	f) 6	g) 0
h) 3	i) 0	j) 8	k) 12	l) 10	m) 15	n) 0
o) 8	p) 9	q) 1	r) 2	s) 0	t) 6	u) 27
v) 10	w) 16	x) 0	y) 18	z) 0	aa) 30	bb) 2

Exercise Six

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the zero to three times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

a)
$$\begin{array}{r} 0 \\ \times 9 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 3 \\ \times 6 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 1 \\ \times 0 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 2 \\ \times 6 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 3 \\ \times 0 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 0 \\ \times 2 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 1 \\ \times 3 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 2 \\ \times 10 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 3 \\ \times 7 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 1 \\ \times 5 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 0 \\ \times 6 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 0 \\ \times 10 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 1 \\ \times 6 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 3 \\ \times 8 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 2 \\ \times 0 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 1 \\ \times 6 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$$

s)
$$\begin{array}{r} 0 \\ \times 1 \\ \hline \end{array}$$

t)
$$\begin{array}{r} 3 \\ \times 7 \\ \hline \end{array}$$

u)
$$\begin{array}{r} 0 \\ \times 10 \\ \hline \end{array}$$

v)
$$\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$$

w)
$$\begin{array}{r} 3 \\ \times 10 \\ \hline \end{array}$$

x)
$$\begin{array}{r} 1 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} y) \quad 2 \\ \quad \underline{\times 0} \end{array}$$

$$\begin{array}{r} z) \quad 0 \\ \quad \underline{\times 0} \end{array}$$

$$\begin{array}{r} aa) \quad 1 \\ \quad \underline{\times 10} \end{array}$$

$$\begin{array}{r} bb) \quad 3 \\ \quad \underline{\times 8} \end{array}$$

Answers to Exercise Six

a) 0	b) 18	c) 0	d) 12	e) 0	f) 0	g) 14
h) 3	i) 20	j) 21	k) 5	l) 0	m) 0	n) 6
o) 24	p) 0	q) 6	r) 18	s) 0	t) 21	u) 0
v) 8	w) 30	x) 0	y) 0	z) 0	aa) 10	bb) 24

Exercise Seven

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product (the **answer** for a multiplication question). This exercise includes the zero to three times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

$$\begin{array}{r} a) \quad 1 \\ \quad \underline{\times 3} \end{array}$$

$$\begin{array}{r} b) \quad 3 \\ \quad \underline{\times 0} \end{array}$$

$$\begin{array}{r} c) \quad 2 \\ \quad \underline{\times 5} \end{array}$$

$$\begin{array}{r} d) \quad 0 \\ \quad \underline{\times 7} \end{array}$$

$$\begin{array}{r} e) \quad 3 \\ \quad \underline{\times 3} \end{array}$$

$$\begin{array}{r} f) \quad 1 \\ \quad \underline{\times 9} \end{array}$$

$$\begin{array}{r} g) \quad 0 \\ \quad \underline{\times 8} \end{array}$$

$$\begin{array}{r} h) \quad 2 \\ \quad \underline{\times 6} \end{array}$$

$$\begin{array}{r} i) \quad 1 \\ \quad \underline{\times 1} \end{array}$$

$$\begin{array}{r} j) \quad 2 \\ \quad \underline{\times 10} \end{array}$$

$$\begin{array}{r} k) \quad 3 \\ \quad \underline{\times 9} \end{array}$$

$$\begin{array}{r} l) \quad 0 \\ \quad \underline{\times 5} \end{array}$$

- | | | | |
|--|--|--|--|
| m) $\begin{array}{r} 2 \\ \times 7 \end{array}$ | n) $\begin{array}{r} 1 \\ \times 5 \end{array}$ | o) $\begin{array}{r} 0 \\ \times 2 \end{array}$ | p) $\begin{array}{r} 3 \\ \times 5 \end{array}$ |
| q) $\begin{array}{r} 0 \\ \times 9 \end{array}$ | r) $\begin{array}{r} 3 \\ \times 6 \end{array}$ | s) $\begin{array}{r} 2 \\ \times 2 \end{array}$ | t) $\begin{array}{r} 1 \\ \times 7 \end{array}$ |
| u) $\begin{array}{r} 3 \\ \times 4 \end{array}$ | v) $\begin{array}{r} 0 \\ \times 6 \end{array}$ | w) $\begin{array}{r} 1 \\ \times 4 \end{array}$ | x) $\begin{array}{r} 2 \\ \times 8 \end{array}$ |
| y) $\begin{array}{r} 1 \\ \times 8 \end{array}$ | z) $\begin{array}{r} 0 \\ \times 4 \end{array}$ | aa) $\begin{array}{r} 2 \\ \times 1 \end{array}$ | bb) $\begin{array}{r} 3 \\ \times 2 \end{array}$ |
| cc) $\begin{array}{r} 2 \\ \times 3 \end{array}$ | dd) $\begin{array}{r} 3 \\ \times 1 \end{array}$ | ee) $\begin{array}{r} 0 \\ \times 3 \end{array}$ | ff) $\begin{array}{r} 1 \\ \times 2 \end{array}$ |
| gg) $\begin{array}{r} 3 \\ \times 8 \end{array}$ | hh) $\begin{array}{r} 2 \\ \times 7 \end{array}$ | ii) $\begin{array}{r} 1 \\ \times 2 \end{array}$ | jj) $\begin{array}{r} 0 \\ \times 6 \end{array}$ |
| kk) $\begin{array}{r} 0 \\ \times 9 \end{array}$ | ll) $\begin{array}{r} 1 \\ \times 8 \end{array}$ | mm) $\begin{array}{r} 3 \\ \times 7 \end{array}$ | nn) $\begin{array}{r} 2 \\ \times 9 \end{array}$ |
| oo) $\begin{array}{r} 2 \\ \times 8 \end{array}$ | pp) $\begin{array}{r} 3 \\ \times 6 \end{array}$ | qq) $\begin{array}{r} 1 \\ \times 7 \end{array}$ | rr) $\begin{array}{r} 3 \\ \times 9 \end{array}$ |

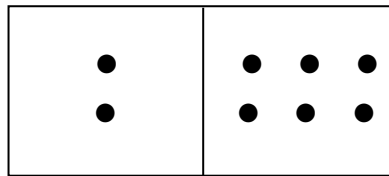
Answers to Exercise Seven

a) 3	b) 0	c) 10	d) 0	e) 9	f) 9	g) 0
h) 12	i) 1	j) 20	k) 27	l) 0	m) 14	n) 5
o) 0	p) 15	q) 0	r) 18	s) 4	t) 7	u) 12
v) 0	w) 4	x) 16	y) 8	z) 0	aa) 2	bb) 6
cc) 6	dd) 3	ee) 0	ff) 2	gg) 24	hh) 14	ii) 2
jj) 0	kk) 0	ll) 8	mm) 21	nn) 18	oo) 16	pp) 18
qq) 7	rr) 27					

Need Extra Practice? **Domino Practice** - Find a partner and ask your instructor for double twelve dominoes.

- Use only the following dominoes:
0-0 to 0-10
1-1 to 1-10
2-2 to 2-10
3-3 to 3-10
- Turn over the dominoes
- Flip a domino and multiply the two numbers

Example:



This would be 2 x 6

- If you answer correctly, keep the domino
- If you answer incorrectly, flip the domino over

Study the four times tables below.

$4 \times 0 = 0$
$4 \times 1 = 4$
$4 \times 2 = 8$
$4 \times 3 = 12$
$4 \times 4 = 16$
$4 \times 5 = 20$
$4 \times 6 = 24$
$4 \times 7 = 28$
$4 \times 8 = 32$
$4 \times 9 = 36$
$4 \times 10 = 40$

The fives times table is special. If you are multiplying by an even number, the product ends in zero. If you are multiplying by an odd number, the product ends in five.

$5 \times 0 = 0$
$5 \times 1 = 5$
$5 \times 2 = 10$
$5 \times 3 = 15$
$5 \times 4 = 20$
$5 \times 5 = 25$
$5 \times 6 = 30$
$5 \times 7 = 35$
$5 \times 8 = 40$
$5 \times 9 = 45$
$5 \times 10 = 50$

The products for the odd numbers 1, 3, 5, 7 and 9 end in five.

The products for the even numbers 2, 4, 6, 8 and 10 end in 10.

Study the six times tables below.

$6 \times 0 = 0$
$6 \times 1 = 6$
$6 \times 2 = 12$
$6 \times 3 = 18$
$6 \times 4 = 24$
$6 \times 5 = 30$
$6 \times 6 = 36$
$6 \times 7 = 42$
$6 \times 8 = 48$
$6 \times 9 = 54$
$6 \times 10 = 60$

Exercise Eight

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the four to six times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

a)
$$\begin{array}{r} 5 \\ \times 3 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 5 \\ \times 5 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 4 \\ \times 3 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 5 \\ \times 1 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 4 \\ \times 4 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 6 \\ \times 3 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 4 \\ \times 5 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 5 \\ \times 8 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 6 \\ \times 0 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 4 \\ \times 6 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 5 \\ \times 0 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 4 \\ \times 9 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$$

s)
$$\begin{array}{r} 6 \\ \times 8 \\ \hline \end{array}$$

t)
$$\begin{array}{r} 4 \\ \times 0 \\ \hline \end{array}$$

u)
$$\begin{array}{r} 6 \\ \times 4 \\ \hline \end{array}$$

v)
$$\begin{array}{r} 4 \\ \times 8 \\ \hline \end{array}$$

w)
$$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$$

x)
$$\begin{array}{r} 6 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} y) \quad 4 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} z) \quad 6 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} aa) \quad 5 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} bb) \quad 4 \\ \times 10 \\ \hline \end{array}$$

Answers to Exercise Eight

a) 15	b) 42	c) 8	d) 25	e) 12	f) 12	g) 5
h) 36	i) 16	j) 20	k) 18	l) 20	m) 40	n) 0
o) 24	p) 0	q) 36	r) 10	s) 48	t) 0	u) 24
v) 32	w) 45	x) 54	y) 4	z) 30	aa) 50	bb) 40

Exercise Nine

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the four to six times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

$$\begin{array}{r} a) \quad 5 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} b) \quad 6 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} c) \quad 4 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} d) \quad 5 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} e) \quad 6 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} f) \quad 4 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} g) \quad 5 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} h) \quad 6 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} i) \quad 4 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} j) \quad 5 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} k) \quad 6 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} l) \quad 4 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 6 \\ \quad \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 4 \\ \quad \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 5 \\ \quad \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 6 \\ \quad \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 5 \\ \quad \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 6 \\ \quad \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 4 \\ \quad \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 5 \\ \quad \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 4 \\ \quad \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 5 \\ \quad \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 6 \\ \quad \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 4 \\ \quad \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{y)} \quad 5 \\ \quad \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{z)} \quad 6 \\ \quad \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{aa)} \quad 4 \\ \quad \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{bb)} \quad 5 \\ \quad \times 0 \\ \hline \end{array}$$

Answers to Exercise Nine

a) 30	b) 6	c) 28	d) 35	e) 60	f) 8	g) 20
h) 18	i) 16	j) 30	k) 24	l) 28	m) 54	n) 20
o) 10	p) 0	q) 35	r) 36	s) 0	t) 50	u) 36
v) 5	w) 30	x) 12	y) 45	z) 12	aa) 4	bb) 0

Exercise Ten

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the four to six times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

$$\begin{array}{r} \text{a)} \quad 6 \\ \quad \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 5 \\ \quad \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 4 \\ \quad \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 6 \\ \quad \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 4 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 5 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 6 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 4 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 5 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 6 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 4 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 5 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 4 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 5 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 6 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 4 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 6 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 4 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 5 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 6 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 5 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 6 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 4 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 5 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{y)} \quad 6 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{z)} \quad 4 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{aa)} \quad 5 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{bb)} \quad 6 \\ \times 0 \\ \hline \end{array}$$

Answers to Exercise Ten

a) 48	b) 15	c) 32	d) 6	e) 24	f) 40	g) 42
h) 40	i) 25	j) 60	k) 28	l) 30	m) 4	n) 25
o) 12	p) 16	q) 54	r) 12	s) 20	t) 6	u) 45
v) 36	w) 32	x) 10	y) 48	z) 20	aa) 15	bb) 0

Need Extra Practice?

Card Practice - Find a partner and ask your instructor for a deck of cards.

- Take out all the jacks, queens and kings. You will only need the aces to tens.
- Choose a times table to practice.

- **Example:** to practice the 5 times table
- Choose a single 5 card and place it face up.
- Shuffle the remainder of the cards.
- From the shuffled cards, place one card face up next to the five.
- Multiply. Have your partner check your answer.
- If the answer is correct, leave it on the pile.
- If the answer is incorrect, place the card in front of you.
- Keep turning cards over until there are no cards left.
- Reshuffle any cards in front of you.
- Place a card on the pile and multiply.
- When all the cards are in the pile, you are done.
- Choose a different times table to practice and start again.

Exercise Eleven

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the zero to six times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

a)
$$\begin{array}{r} 6 \\ \times 3 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 0 \\ \times 2 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 6 \\ \times 4 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 1 \\ \times 5 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 5 \\ \times 8 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 4 \\ \times 9 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 5 \\ \times 1 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 2 \\ \times 4 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 3 \\ \times 10 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 1 \\ \times 3 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$$

s)
$$\begin{array}{r} 4 \\ \times 6 \\ \hline \end{array}$$

t)
$$\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$$

u)
$$\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$$

v)
$$\begin{array}{r} 3 \\ \times 4 \\ \hline \end{array}$$

w)
$$\begin{array}{r} 5 \\ \times 0 \\ \hline \end{array}$$

x)
$$\begin{array}{r} 4 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} y) \quad 1 \\ \quad \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} z) \quad 3 \\ \quad \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} aa) \quad 4 \\ \quad \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} bb) \quad 6 \\ \quad \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} cc) \quad 6 \\ \quad \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} dd) \quad 1 \\ \quad \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} ee) \quad 3 \\ \quad \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} ff) \quad 2 \\ \quad \times 9 \\ \hline \end{array}$$

Answers to Exercise Eleven

a) 18	b) 35	c) 0	d) 24	e) 5	f) 6	g) 9
h) 8	i) 4	j) 42	k) 40	l) 36	m) 5	n) 8
o) 30	p) 10	q) 3	r) 15	s) 24	t) 42	u) 30
v) 12	w) 0	x) 40	y) 9	z) 6	aa) 0	bb) 54
cc) 36	dd) 0	ee) 21	ff) 18			

Exercise Twelve

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the zero to six times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

$$\begin{array}{r} a) \quad 3 \\ \quad \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} b) \quad 1 \\ \quad \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} c) \quad 4 \\ \quad \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} d) \quad 3 \\ \quad \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} e) \quad 4 \\ \quad \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} f) \quad 6 \\ \quad \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} g) \quad 3 \\ \quad \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} h) \quad 5 \\ \quad \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 4 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j)} \quad 1 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k)} \quad 5 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l)} \quad 3 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m)} \quad 2 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n)} \quad 6 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o)} \quad 4 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p)} \quad 5 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q)} \quad 1 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r)} \quad 0 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s)} \quad 5 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t)} \quad 1 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u)} \quad 5 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v)} \quad 2 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w)} \quad 6 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x)} \quad 5 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} \text{y)} \quad 2 \\ \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} \text{z)} \quad 6 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{aa)} \quad 5 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{bb)} \quad 4 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{cc)} \quad 1 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{dd)} \quad 2 \\ \times 10 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ee)} \quad 6 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ff)} \quad 2 \\ \times 1 \\ \hline \end{array}$$

Answers to Exercise Twelve

a) 24	b) 6	c) 28	d) 18	e) 16	f) 12	g) 3
h) 25	i) 32	j) 1	k) 15	l) 27	m) 14	n) 0
o) 12	p) 30	q) 8	r) 0	s) 45	t) 7	u) 20
v) 16	w) 18	x) 50	y) 0	z) 48	aa) 10	bb) 20
cc) 4	dd) 20	ee) 6	ff) 2			

Exercise Thirteen

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the zero to six times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

a) $\begin{array}{r} 1 \\ \times 1 \\ \hline \end{array}$

b) $\begin{array}{r} 6 \\ \times 10 \\ \hline \end{array}$

c) $\begin{array}{r} 4 \\ \times 1 \\ \hline \end{array}$

d) $\begin{array}{r} 3 \\ \times 0 \\ \hline \end{array}$

e) $\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$

f) $\begin{array}{r} 4 \\ \times 10 \\ \hline \end{array}$

g) $\begin{array}{r} 2 \\ \times 1 \\ \hline \end{array}$

h) $\begin{array}{r} 1 \\ \times 7 \\ \hline \end{array}$

i) $\begin{array}{r} 0 \\ \times 6 \\ \hline \end{array}$

j) $\begin{array}{r} 6 \\ \times 4 \\ \hline \end{array}$

k) $\begin{array}{r} 1 \\ \times 2 \\ \hline \end{array}$

l) $\begin{array}{r} 0 \\ \times 10 \\ \hline \end{array}$

m) $\begin{array}{r} 1 \\ \times 3 \\ \hline \end{array}$

n) $\begin{array}{r} 5 \\ \times 8 \\ \hline \end{array}$

o) $\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$

p) $\begin{array}{r} 4 \\ \times 5 \\ \hline \end{array}$

q) $\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$

r) $\begin{array}{r} 3 \\ \times 10 \\ \hline \end{array}$

s) $\begin{array}{r} 5 \\ \times 0 \\ \hline \end{array}$

t) $\begin{array}{r} 1 \\ \times 10 \\ \hline \end{array}$

u) $\begin{array}{r} 5 \\ \times 6 \\ \hline \end{array}$

v) $\begin{array}{r} 6 \\ \times 3 \\ \hline \end{array}$

w) $\begin{array}{r} 4 \\ \times 7 \\ \hline \end{array}$

x) $\begin{array}{r} 4 \\ \times 8 \\ \hline \end{array}$

$$\begin{array}{r} y) \quad 6 \\ \quad \underline{\times 6} \end{array}$$

$$\begin{array}{r} z) \quad 5 \\ \quad \underline{\times 5} \end{array}$$

$$\begin{array}{r} aa) \quad 3 \\ \quad \underline{\times 9} \end{array}$$

$$\begin{array}{r} bb) \quad 6 \\ \quad \underline{\times 8} \end{array}$$

$$\begin{array}{r} cc) \quad 6 \\ \quad \underline{\times 2} \end{array}$$

$$\begin{array}{r} dd) \quad 4 \\ \quad \underline{\times 6} \end{array}$$

$$\begin{array}{r} ee) \quad 3 \\ \quad \underline{\times 7} \end{array}$$

$$\begin{array}{r} ff) \quad 2 \\ \quad \underline{\times 9} \end{array}$$

Answers to Exercise Thirteen

a) 1	b) 60	c) 4	d) 0	e) 35	f) 40	g) 2
h) 7	i) 0	j) 24	k) 2	l) 0	m) 3	n) 40
o) 42	p) 20	q) 30	r) 30	s) 0	t) 10	u) 30
v) 18	w) 28	x) 32	y) 36	z) 25	aa) 27	bb) 48
cc) 12	dd) 24	ee) 21	ff) 18			

Study the seven times table below.

$7 \times 0 = 0$
$7 \times 1 = 7$
$7 \times 2 = 14$
$7 \times 3 = 21$
$7 \times 4 = 28$
$7 \times 5 = 35$
$7 \times 6 = 42$
$7 \times 7 = 49$
$7 \times 8 = 56$
$7 \times 9 = 63$
$7 \times 10 = 70$

Study the eight times table below.

$8 \times 0 = 0$
$8 \times 1 = 8$
$8 \times 2 = 16$
$8 \times 3 = 24$
$8 \times 4 = 32$
$8 \times 5 = 40$
$8 \times 6 = 48$
$8 \times 7 = 56$
$8 \times 8 = 64$
$8 \times 9 = 72$
$8 \times 10 = 80$

The nines times table is special. The digits of every product add up to nine. Also the first digit in the product is one less than the number you are multiplying

$9 \times 0 = 0$	
$9 \times 1 = 9$	9
$9 \times 2 = 18$	$18 \gg 1 + 8 = 9$
$9 \times 3 = 27$	$27 \gg 2 + 7 = 9$
$9 \times 4 = 36$	$36 \gg 3 + 6 = 9$
$9 \times 5 = 45$	$45 \gg 4 + 5 = 9$
$9 \times 6 = 54$	$54 \gg 5 + 4 = 9$
$9 \times 7 = 63$	$63 \gg 6 + 3 = 9$
$9 \times 8 = 72$	$72 \gg 7 + 2 = 9$
$9 \times 9 = 81$	$81 \gg 8 + 1 = 9$
$9 \times 10 = 90$	$90 \gg 9 + 0 = 9$

Exercise Fourteen

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the seven to nine times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

a)
$$\begin{array}{r} 7 \\ \times 4 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 9 \\ \times 0 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 7 \\ \times 2 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 9 \\ \times 6 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 7 \\ \times 0 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 8 \\ \times 8 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 9 \\ \times 1 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 9 \\ \times 2 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 7 \\ \times 9 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 8 \\ \times 0 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 9 \\ \times 4 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 7 \\ \times 7 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 8 \\ \times 1 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 9 \\ \times 10 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 7 \\ \times 5 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 8 \\ \times 4 \\ \hline \end{array}$$

s)
$$\begin{array}{r} 9 \\ \times 3 \\ \hline \end{array}$$

t)
$$\begin{array}{r} 7 \\ \times 10 \\ \hline \end{array}$$

u)
$$\begin{array}{r} 8 \\ \times 8 \\ \hline \end{array}$$

v)
$$\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$$

w)
$$\begin{array}{r} 7 \\ \times 1 \\ \hline \end{array}$$

x)
$$\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} y) \quad 7 \\ \quad \underline{x 3} \end{array}$$

$$\begin{array}{r} z) \quad 8 \\ \quad \underline{x 5} \end{array}$$

$$\begin{array}{r} aa) \quad 9 \\ \quad \underline{x 9} \end{array}$$

$$\begin{array}{r} bb) \quad 7 \\ \quad \underline{x 8} \end{array}$$

Answers to Exercise Fourteen

a) 28	b) 24	c) 0	d) 14	e) 54	f) 0	g) 64
h) 9	i) 48	j) 18	k) 63	l) 0	m) 36	n) 49
o) 8	p) 90	q) 35	r) 32	s) 27	t) 70	u) 64
v) 45	w) 7	x) 16	y) 21	z) 40	aa) 81	bb) 56

Exercise Fifteen

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the seven to nine times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

$$\begin{array}{r} a) \quad 8 \\ \quad \underline{x 7} \end{array}$$

$$\begin{array}{r} b) \quad 9 \\ \quad \underline{x 8} \end{array}$$

$$\begin{array}{r} c) \quad 7 \\ \quad \underline{x 6} \end{array}$$

$$\begin{array}{r} d) \quad 8 \\ \quad \underline{x 10} \end{array}$$

$$\begin{array}{r} e) \quad 9 \\ \quad \underline{x 7} \end{array}$$

$$\begin{array}{r} f) \quad 7 \\ \quad \underline{x 3} \end{array}$$

$$\begin{array}{r} g) \quad 8 \\ \quad \underline{x 6} \end{array}$$

$$\begin{array}{r} h) \quad 9 \\ \quad \underline{x 1} \end{array}$$

$$\begin{array}{r} i) \quad 8 \\ \quad \underline{x 3} \end{array}$$

$$\begin{array}{r} j) \quad 7 \\ \quad \underline{x 7} \end{array}$$

$$\begin{array}{r} k) \quad 9 \\ \quad \underline{x 4} \end{array}$$

$$\begin{array}{r} l) \quad 8 \\ \quad \underline{x 9} \end{array}$$

$$\begin{array}{r} \text{m)} \quad 9 \\ \underline{\times 6} \end{array}$$

$$\begin{array}{r} \text{n)} \quad 8 \\ \underline{\times 1} \end{array}$$

$$\begin{array}{r} \text{o)} \quad 7 \\ \underline{\times 0} \end{array}$$

$$\begin{array}{r} \text{p)} \quad 9 \\ \underline{\times 2} \end{array}$$

$$\begin{array}{r} \text{q)} \quad 7 \\ \underline{\times 9} \end{array}$$

$$\begin{array}{r} \text{r)} \quad 9 \\ \underline{\times 9} \end{array}$$

$$\begin{array}{r} \text{s)} \quad 8 \\ \underline{\times 2} \end{array}$$

$$\begin{array}{r} \text{t)} \quad 7 \\ \underline{\times 2} \end{array}$$

$$\begin{array}{r} \text{u)} \quad 8 \\ \underline{\times 8} \end{array}$$

$$\begin{array}{r} \text{v)} \quad 7 \\ \underline{\times 1} \end{array}$$

$$\begin{array}{r} \text{w)} \quad 9 \\ \underline{\times 7} \end{array}$$

$$\begin{array}{r} \text{x)} \quad 8 \\ \underline{\times 4} \end{array}$$

$$\begin{array}{r} \text{y)} \quad 7 \\ \underline{\times 4} \end{array}$$

$$\begin{array}{r} \text{z)} \quad 9 \\ \underline{\times 3} \end{array}$$

$$\begin{array}{r} \text{aa)} \quad 8 \\ \underline{\times 0} \end{array}$$

$$\begin{array}{r} \text{bb)} \quad 7 \\ \underline{\times 10} \end{array}$$

Answers to Exercise Fifteen

a) 56	b) 72	c) 42	d) 80	e) 63	f) 21	g) 48
h) 9	i) 24	j) 49	k) 36	l) 72	m) 54	n) 8
o) 0	p) 18	q) 63	r) 81	s) 16	t) 14	u) 64
v) 7	w) 63	x) 32	y) 28	z) 27	aa) 0	bb) 70

Exercise Sixteen

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the seven to nine times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

a)
$$\begin{array}{r} 9 \\ \times 0 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 8 \\ \times 7 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 7 \\ \times 5 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 7 \\ \times 6 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 9 \\ \times 8 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 8 \\ \times 5 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 7 \\ \times 8 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 9 \\ \times 8 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 8 \\ \times 10 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 7 \\ \times 4 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 9 \\ \times 10 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 7 \\ \times 7 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 9 \\ \times 3 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 8 \\ \times 9 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 9 \\ \times 4 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$$

s)
$$\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$$

t)
$$\begin{array}{r} 9 \\ \times 8 \\ \hline \end{array}$$

u)
$$\begin{array}{r} 8 \\ \times 8 \\ \hline \end{array}$$

v)
$$\begin{array}{r} 9 \\ \times 9 \\ \hline \end{array}$$

w)
$$\begin{array}{r} 7 \\ \times 2 \\ \hline \end{array}$$

x)
$$\begin{array}{r} 8 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} y) \quad 7 \\ \quad \underline{\times 9} \end{array}$$

$$\begin{array}{r} z) \quad 8 \\ \quad \underline{\times 1} \end{array}$$

$$\begin{array}{r} aa) \quad 9 \\ \quad \underline{\times 6} \end{array}$$

$$\begin{array}{r} bb) \quad 7 \\ \quad \underline{\times 0} \end{array}$$

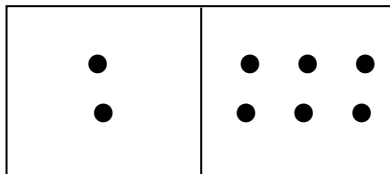
Answers to Exercise Sixteen

a) 0	b) 56	c) 35	d) 45	e) 42	f) 72	g) 40
h) 56	i) 72	j) 80	k) 28	l) 90	m) 48	n) 49
o) 27	p) 72	q) 36	r) 24	s) 21	t) 72	u) 64
v) 81	w) 14	x) 16	y) 63	z) 8	aa) 54	bb) 0

Need Extra Practice? **Domino Practice** - Find a partner and ask your instructor for double twelves dominoes.

- Use only the following dominoes:
 - 1-0 to 0-10
 - 1-2 to 1-10
 - 2-2 to 2-10
 - 3-3 to 3-10
 - 4-4 to 4-10
 - 5-5 to 5-10
 - 6-6 to 6-10
 - 7-7 to 7-10
 - 8-8 to 8-10
 - 9-9 to 9-10
 - 10-10
- Turn over the dominoes
- Flip a domino and multiply the two numbers

Example:



This would be 2 x 6

- If you answer correctly, keep the domino

Need Extra Practice?

- If you answer incorrectly, flip the domino over

Card Practice - Find a partner and ask your instructor for a deck of cards.

- Take out all the jacks, queens and kings. You will only need the aces to tens.
- Choose a times table to practice.

- **Example:** to practice the 8 times table
- Choose a single 8 card and place it face up.
- Shuffle the remainder of the cards.
- From the shuffled cards, place one card face up next to the five.
- Multiply. Have your partner check your answer.
- If the answer is correct, leave it on the pile.
- If the answer is incorrect, place the card in front of you.
- Keep turning cards over until there are no cards left.
- Reshuffle any cards in front of you.
- Place a card on the pile and multiply.
- When all the cards are in the pile, you are done.
- Choose a different times table to practice and start again.

Exercise Seventeen

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the zero to nine times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

a) $\begin{array}{r} 3 \\ \times 1 \\ \hline \end{array}$

b) $\begin{array}{r} 5 \\ \times 2 \\ \hline \end{array}$

c) $\begin{array}{r} 0 \\ \times 9 \\ \hline \end{array}$

d) $\begin{array}{r} 4 \\ \times 8 \\ \hline \end{array}$

e) $\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$

f) $\begin{array}{r} 1 \\ \times 3 \\ \hline \end{array}$

g) $\begin{array}{r} 7 \\ \times 6 \\ \hline \end{array}$

h) $\begin{array}{r} 1 \\ \times 4 \\ \hline \end{array}$

i) $\begin{array}{r} 8 \\ \times 7 \\ \hline \end{array}$

j) $\begin{array}{r} 9 \\ \times 0 \\ \hline \end{array}$

k) $\begin{array}{r} 3 \\ \times 6 \\ \hline \end{array}$

l) $\begin{array}{r} 5 \\ \times 7 \\ \hline \end{array}$

m) $\begin{array}{r} 1 \\ \times 9 \\ \hline \end{array}$

n) $\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$

o) $\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$

p) $\begin{array}{r} 0 \\ \times 1 \\ \hline \end{array}$

q) $\begin{array}{r} 7 \\ \times 0 \\ \hline \end{array}$

r) $\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$

s) $\begin{array}{r} 6 \\ \times 8 \\ \hline \end{array}$

t) $\begin{array}{r} 9 \\ \times 4 \\ \hline \end{array}$

u) $\begin{array}{r} 4 \\ \times 5 \\ \hline \end{array}$

v) $\begin{array}{r} 6 \\ \times 2 \\ \hline \end{array}$

w) $\begin{array}{r} 7 \\ \times 1 \\ \hline \end{array}$

x) $\begin{array}{r} 5 \\ \times 8 \\ \hline \end{array}$

$$\begin{array}{r} y) \quad 3 \\ \underline{x \ 9} \end{array}$$

$$\begin{array}{r} z) \quad 9 \\ \underline{x \ 7} \end{array}$$

$$\begin{array}{r} aa) \quad 1 \\ \underline{x \ 3} \end{array}$$

$$\begin{array}{r} bb) \quad 0 \\ \underline{x \ 4} \end{array}$$

$$\begin{array}{r} cc) \quad 8 \\ \underline{x \ 0} \end{array}$$

$$\begin{array}{r} dd) \quad 2 \\ \underline{x \ 6} \end{array}$$

$$\begin{array}{r} ee) \quad 7 \\ \underline{x \ 3} \end{array}$$

$$\begin{array}{r} ff) \quad 5 \\ \underline{x \ 5} \end{array}$$

$$\begin{array}{r} gg) \quad 6 \\ \underline{x \ 1} \end{array}$$

$$\begin{array}{r} hh) \quad 3 \\ \underline{x \ 7} \end{array}$$

$$\begin{array}{r} ii) \quad 2 \\ \underline{x \ 4} \end{array}$$

$$\begin{array}{r} jj) \quad 8 \\ \underline{x \ 9} \end{array}$$

$$\begin{array}{r} kk) \quad 9 \\ \underline{x \ 2} \end{array}$$

$$\begin{array}{r} ll) \quad 1 \\ \underline{x \ 6} \end{array}$$

$$\begin{array}{r} mm) \quad 4 \\ \underline{x \ 0} \end{array}$$

$$\begin{array}{r} nn) \quad 0 \\ \underline{x \ 8} \end{array}$$

Answers to Exercise Seventeen

a) 3	b) 10	c) 0	d) 32	e) 30	f) 3	g) 42
h) 4	i) 56	j) 0	k) 18	l) 35	m) 9	n) 24
o) 10	p) 0	q) 0	r) 8	s) 48	t) 36	u) 20
v) 12	w) 7	x) 40	y) 27	z) 63	aa) 3	bb) 0
cc) 0	dd) 12	ee) 21	ff) 25	gg) 6	hh) 21	ii) 8
jj) 72	ll) 18	ll) 6	mm) 0	nn) 0		

Exercise Eighteen

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the zero to nine times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

a)
$$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 6 \\ \times 3 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 1 \\ \times 8 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 2 \\ \times 2 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 4 \\ \times 7 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 0 \\ \times 5 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 7 \\ \times 4 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 9 \\ \times 6 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 8 \\ \times 1 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 3 \\ \times 0 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 4 \\ \times 4 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 7 \\ \times 8 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 5 \\ \times 3 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 0 \\ \times 9 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 6 \\ \times 0 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 1 \\ \times 1 \\ \hline \end{array}$$

s)
$$\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$$

t)
$$\begin{array}{r} 2 \\ \times 7 \\ \hline \end{array}$$

u)
$$\begin{array}{r} 2 \\ \times 9 \\ \hline \end{array}$$

v)
$$\begin{array}{r} 5 \\ \times 1 \\ \hline \end{array}$$

w)
$$\begin{array}{r} 9 \\ \times 3 \\ \hline \end{array}$$

x)
$$\begin{array}{r} 7 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} y) \quad 1 \\ \quad \underline{x 0} \end{array}$$

$$\begin{array}{r} z) \quad 3 \\ \quad \underline{x 8} \end{array}$$

$$\begin{array}{r} aa) \quad 0 \\ \quad \underline{x 7} \end{array}$$

$$\begin{array}{r} bb) \quad 6 \\ \quad \underline{x 4} \end{array}$$

$$\begin{array}{r} cc) \quad 8 \\ \quad \underline{x 2} \end{array}$$

$$\begin{array}{r} dd) \quad 4 \\ \quad \underline{x 6} \end{array}$$

$$\begin{array}{r} ee) \quad 8 \\ \quad \underline{x 5} \end{array}$$

$$\begin{array}{r} ff) \quad 5 \\ \quad \underline{x 6} \end{array}$$

$$\begin{array}{r} gg) \quad 3 \\ \quad \underline{x 4} \end{array}$$

$$\begin{array}{r} hh) \quad 2 \\ \quad \underline{x 8} \end{array}$$

$$\begin{array}{r} ii) \quad 0 \\ \quad \underline{x 3} \end{array}$$

$$\begin{array}{r} jj) \quad 6 \\ \quad \underline{x 7} \end{array}$$

$$\begin{array}{r} kk) \quad 1 \\ \quad \underline{x 10} \end{array}$$

$$\begin{array}{r} ll) \quad 4 \\ \quad \underline{x 9} \end{array}$$

$$\begin{array}{r} mm) \quad 9 \\ \quad \underline{x 1} \end{array}$$

$$\begin{array}{r} nn) \quad 7 \\ \quad \underline{x 2} \end{array}$$

Answers to Exercise Eighteen

a) 45	b) 18	c) 8	d) 4	e) 28	f) 0	g) 28
h) 54	i) 8	j) 0	k) 16	l) 56	m) 45	n) 15
o) 0	p) 0	q) 6	r) 1	s) 48	t) 14	u) 18
v) 5	w) 27	x) 35	y) 0	z) 24	aa) 0	bb) 24
cc) 16	dd) 24	ee) 40	ff) 30	gg) 12	hh) 16	ii) 0
jj) 42	kk) 10	ll) 36	mm) 9	nn) 14		

Exercise Nineteen

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the zero to nine times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

a)
$$\begin{array}{r} 1 \\ \times 2 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 7 \\ \times 7 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 8 \\ \times 8 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 2 \\ \times 0 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 4 \\ \times 1 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 0 \\ \times 5 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 9 \\ \times 6 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 4 \\ \times 3 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 9 \\ \times 9 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 1 \\ \times 7 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 6 \\ \times 9 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 0 \\ \times 6 \\ \hline \end{array}$$

q)
$$\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$$

r)
$$\begin{array}{r} 2 \\ \times 1 \\ \hline \end{array}$$

s)
$$\begin{array}{r} 1 \\ \times 5 \\ \hline \end{array}$$

t)
$$\begin{array}{r} 7 \\ \times 9 \\ \hline \end{array}$$

u)
$$\begin{array}{r} 8 \\ \times 4 \\ \hline \end{array}$$

v)
$$\begin{array}{r} 0 \\ \times 2 \\ \hline \end{array}$$

w)
$$\begin{array}{r} 5 \\ \times 1 \\ \hline \end{array}$$

x)
$$\begin{array}{r} 9 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} y) \quad 2 \\ \quad \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} z) \quad 0 \\ \quad \times 0 \\ \hline \end{array}$$

$$\begin{array}{r} aa) \quad 6 \\ \quad \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} bb) \quad 3 \\ \quad \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} cc) \quad 8 \\ \quad \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} dd) \quad 7 \\ \quad \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} ee) \quad 1 \\ \quad \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} ff) \quad 3 \\ \quad \times 2 \\ \hline \end{array}$$

Answers to Exercise Nineteen

a) 2	b) 9	c) 36	d) 20	e) 49	f) 64	g) 0
h) 4	i) 0	j) 54	k) 12	l) 81	m) 7	n) 54
o) 15	p) 0	q) 8	r) 2	s) 5	t) 63	u) 32
v) 0	w) 5	x) 72	y) 10	z) 0	aa) 24	bb) 21
cc) 16	dd) 35	ee) 1	ff) 6			

Exercise Twenty

Check out your **multiplication facts** by doing this exercise as quickly as possible. Find the product. This exercise includes the zero to nine times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

$$\begin{array}{r} a) \quad 5 \\ \quad \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} b) \quad 7 \\ \quad \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} c) \quad 6 \\ \quad \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} d) \quad 9 \\ \quad \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} e) \quad 6 \\ \quad \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} f) \quad 7 \\ \quad \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} g) \quad 2 \\ \quad \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} h) \quad 4 \\ \quad \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i) } 9 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{j) } 3 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{k) } 7 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{l) } 9 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{m) } 4 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{n) } 6 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{o) } 9 \\ \times 9 \\ \hline \end{array}$$

$$\begin{array}{r} \text{p) } 5 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} \text{q) } 9 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{r) } 8 \\ \times 5 \\ \hline \end{array}$$

$$\begin{array}{r} \text{s) } 7 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{t) } 6 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{u) } 7 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{v) } 5 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} \text{w) } 8 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{x) } 9 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{y) } 8 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{z) } 7 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{aa) } 8 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} \text{bb) } 2 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{cc) } 4 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} \text{dd) } 5 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ee) } 1 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} \text{ff) } 0 \\ \times 9 \\ \hline \end{array}$$

Answers to Exercise Twenty

a) 20	b) 21	c) 30	d) 63	e) 18	f) 42	g) 2
h) 12	i) 45	j) 3	k) 42	l) 18	m) 4	n) 12
o) 81	p) 15	q) 36	r) 40	s) 28	t) 6	u) 7
v) 10	w) 81	x) 72	y) 32	z) 49	aa) 8	bb) 12
cc) 32	dd) 30	ee) 7	ff) 0			



Make a list of any errors that you have made and of the facts that you had to really think about.

As you know, it is very important to memorize the times tables. Use the **times table chart** on the next page until you have all the multiplication facts memorized. It is better to look up the right answer than use the wrong product. Finding the right product and saying the facts to yourself will help you learn.

Times Table Chart

Let's say you do not know the product of 8×9 .

- Find the first factor (8) in the column at the left.
- Find the second factor (9) in the top row.
- Go across the row from the 8 and straight down the column from the 9.
- The lines meet at the product which is 72 ... Try it! Now try finding the products of some other multiplication facts.

Times Table Chart

\times	0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	2	3	4	5	6	7	8	9	10
2	0	2	4	6	8	10	12	14	16	18	20
3	0	3	6	9	12	15	18	21	24	27	30
4	0	4	8	12	16	20	24	28	32	36	40
5	0	5	10	15	20	25	30	35	40	45	50
6	0	6	12	18	24	30	36	42	48	54	60
7	0	7	14	21	28	35	42	49	56	63	70
8	0	8	16	24	32	40	48	56	64	72	80
9	0	9	18	27	36	45	54	63	72	81	90
10	0	10	20	30	40	50	60	70	80	90	100

Times Tables are very difficult to memorize. Here's a technique that may help you to learn them.

An instructor used this technique to teach his students the times tables. It does require you to do some work and will take some time. But, if you are willing, you will learn them. Here's how it works.

Most people can only memorize three things; as soon as they try to memorize a fourth thing, they lose one of the first three. So, instead of trying to memorize the complete times table (which is 121 things), just do three.

Start with these three.

$$\mathbf{9 \times 9 = 81}$$

$$\mathbf{8 \times 8 = 64}$$

$$\mathbf{8 \times 9 = 72}$$

If you know any of these already, for example, you automatically know that $9 \times 9 = 81$, choose another one, like $7 \times 7 = 49$.

Write these three on small cards or pieces of paper in three different ways:

$$\mathbf{9 \times 9 = 81}$$

$$\mathbf{8 \times 8 = 64}$$

$$\mathbf{8 \times 9 = 72}$$

$$\mathbf{9 \times 9 = \underline{\quad}}$$

$$\mathbf{8 \times 8 = \underline{\quad}}$$

$$\mathbf{8 \times 9 = \underline{\quad}}$$

$$\mathbf{9 \times \underline{\quad} = 81}$$

$$\mathbf{8 \times \underline{\quad} = 64}$$

$$\mathbf{8 \times \underline{\quad} = 72}$$

Note: $8 \times 9 = 72$ and $9 \times 8 = 72$. Both are the same, so when you learn 8×9 you will also know 9×8 . You will have learned part of the 8 times table and part of the 9 times table.

Do a number of these and stick them up around your house – over the kitchen sink, on your bathroom mirror, on your closet door, etc. Then, every time you see one of these, run through it in your mind. It only takes about 5 seconds each time. After about a week or two, you will have learned these three. If anyone were to ask you what 9×9 was, you would automatically know that it is 81. You wouldn't have to figure it out; you would know it. And, once you know it, you will never forget it.

Once you have master these three, do three more, like $7 \times 7 = 49$, $7 \times 8 = 56$, $7 \times 9 = 63$. Again, make up small cards and put them all over your house. In another week or so, you will have learned these and can do another three.

If you are willing to do the work, you will learn your times tables. And, once you learn them, you will never forget them. That will make your work in mathematics much easier, and maybe even more fun. Try it! It does work.

Multiplying Across

So far you have only been multiplying numbers when they are **up and down** or **vertical**.

Example:

$$\begin{array}{r} 4 \\ \times 5 \\ \hline 20 \end{array}$$

Another way to multiply numbers is **across** or **horizontally**.

Example: $4 \times 5 = 20$

In math, sometimes you will need to work from left to right.

Exercise One

Practice multiplying **across or horizontally**. Find the product. This exercise includes the zero to nine times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

a) $2 \times 6 =$

b) $5 \times 4 =$

c) $7 \times 3 =$

d) $3 \times 6 =$

e) $8 \times 5 =$

f) $4 \times 7 =$

g) $9 \times 2 =$

h) $6 \times 5 =$

i) $5 \times 3 =$

j) $3 \times 8 =$

k) $7 \times 7 =$

l) $2 \times 9 =$

m) $4 \times 6 =$

n) $6 \times 9 =$

o) $8 \times 8 =$

p) $9 \times 4 =$

q) $3 \times 9 =$

r) $4 \times 4 =$

s) $6 \times 7 =$

t) $9 \times 6 =$

Answers to Exercise One

a) 12	b) 20	c) 21	d) 18	e) 40	f) 28	g) 18
h) 30	i) 15	j) 24	k) 49	l) 18	m) 24	n) 54
o) 64	p) 36	q) 27	r) 16	s) 42	t) 54	

Exercise Two

Practice multiplying **across or horizontally**. Find the product. This exercise includes the zero to nine times tables. Check your work using the answer key at the end of the exercise. Then, make a list of any multiplication facts you do not know or which are slow – practice them.

a) $2 \times 7 =$

b) $5 \times 8 =$

c) $7 \times 9 =$

d) $8 \times 4 =$

e) $4 \times 5 =$

f) $6 \times 8 =$

g) $8 \times 7 =$

h) $9 \times 3 =$

i) $5 \times 6 =$

j) $3 \times 7 =$

k) $7 \times 6 =$

l) $2 \times 8 =$

m) $5 \times 5 =$

n) $4 \times 8 =$

o) $6 \times 6 =$

p) $7 \times 8 =$

q) $8 \times 9 =$

r) $9 \times 7 =$

s) $5 \times 7 =$

t) $9 \times 9 =$

Answers to Exercise Two

a) 14

b) 40

c) 63

d) 32

e) 20

f) 48

g) 56

h) 27

i) 30

j) 21

k) 42

l) 16

m) 25

n) 32

o) 36

p) 56

q) 72

r) 63

s) 35

t) 81

Topic A: Self-Test

Mark /20

Aim 17/20

A. Find the products. Be sure to check your answers.

16 marks

a)
$$\begin{array}{r} 3 \\ \times 3 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 4 \\ \times 9 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 6 \\ \times 4 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 7 \\ \times 8 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 9 \\ \times 5 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 3 \\ \times 9 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 6 \\ \times 9 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 7 \\ \times 7 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 4 \\ \times 8 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 8 \\ \times 9 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 2 \\ \times 5 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 3 \\ \times 7 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 4 \\ \times 6 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$$

B. Find the products. Be sure to check your answers.

4 marks

a) $7 \times 5 =$

b) $8 \times 6 =$

c) $9 \times 8 =$

d) $7 \times 4 =$

Answers to Topic A Self-Test

A.

- | | | | | | |
|-------|-------|-------|-------|-------|-------|
| a) 9 | b) 36 | c) 24 | d) 56 | e) 24 | f) 45 |
| g) 27 | h) 54 | i) 49 | j) 32 | k) 72 | l) 10 |
| m) 21 | n) 24 | o) 45 | p) 42 | | |

B.

- | | | | |
|-------|-------|-------|-------|
| a) 35 | b) 48 | c) 72 | d) 28 |
|-------|-------|-------|-------|

Topic B: Multiplying by 10, 100, and 1 000

When multiplying by 10, 100, 1 000, 10 000, etc., place as many zeros to the right of the number as there are zeros in the 10, 100, 1 000, etc..

To multiply by 10 put one zero after the number.

To multiply by 100 put two zeros after the number.

To multiply by 1 000 put three zeros after the number.

Example: $4 \times 100 =$

100 has two zeroes. Put two zeroes after the number.

$4 \times 100 = 400$

Exercise One

Find the products. Check your work using the answer key at the end of the exercise.

a) $10 \times 2 =$

b) $9 \times 100 =$

c) $100 \times 3 =$

d) $1 \times 1\,000 =$

e) $6 \times 100 =$

f) $10 \times 7 =$

g) $100 \times 10 =$

h) $2 \times 10 =$

i) $5 \times 10 =$

j) $1\,000 \times 1 =$

k) $0 \times 10 =$

l) $1\,000 \times 9 =$

m) $4 \times 1\,000 =$

n) $10 \times 0 =$

o) $100 \times 8 =$

p) $3 \times 1\,000 =$

q) $10 \times 5 =$

r) $7 \times 1\,000 =$

s) $1\,000 \times 6 =$

t) $8 \times 10 =$

u) $100 \times 4 =$

v) $1 \times 100 =$

w) $1\,000 \times 3 =$

x) $10 \times 100 =$

Answers to Exercise One

a) 20	b) 900	c) 300	d) 1 000	e) 600	f) 70	g) 1 000
h) 20	i) 50	j) 1 000	k) 0	l) 9 000	m) 4 000	n) 0
o) 800	p) 3 000	q) 50	r) 7 000	s) 6 000	t) 80	u) 400
v) 100	w) 3 000	x) 1 000				

Exercise Two

Find the products. Check your work using the answer key at the end of the exercise.

a) $100 \times 9 =$

b) $10 \times 1\,000 =$

c) $10 \times 9 =$

d) $1\,000 \times 8 =$

e) $6 \times 10 =$

f) $100 \times 0 =$

g) $3 \times 100 =$

h) $10 \times 1 =$

i) $100 \times 1 =$

j) $5 \times 1\,000 =$

k) $8 \times 100 =$

l) $1\,000 \times 4 =$

m) $9 \times 10 =$

n) $10 \times 100 =$

o) $10 \times 6 =$

p) $5 \times 100 =$

q) $1 \times 10 =$

r) $9 \times 1\,000 =$

s) $100 \times 6 =$

t) $10 \times 8 =$

u) $3 \times 10 =$

v) $1\,000 \times 0 =$

w) $2 \times 1\,000 =$

x) $1\,000 \times 7 =$

Answers to Exercise Two

a) 900	b) 10 000	c) 90	d) 8 000	e) 60	f) 0	g) 300
h) 10	i) 100	j) 5 000	k) 800	l) 4 000	m) 90	n) 1 000
o) 60	p) 500	q) 10	r) 9 000	s) 600	t) 80	u) 30
v) 0	w) 2 000	x) 7 000				

Exercise Three

Find the products. Check your work using the answer key at the end of the exercise.

a) $8 \times 1\,000 =$

b) $100 \times 7 =$

c) $4 \times 10 =$

d) $1\,000 \times 2 =$

e) $10 \times 3 =$

f) $7 \times 100 =$

g) $0 \times 1\,000 =$

h) $100 \times 2 =$

i) $10 \times 10 =$

j) $1\,000 \times 5 =$

k) $0 \times 100 =$

l) $10 \times 4 =$

m) $2 \times 100 =$

n) $6 \times 1\,000 =$

o) $100 \times 5 =$

p) $1\,000 \times 10 =$

q) $7 \times 10 =$

r) $100 \times 10 =$

s) $4 \times 100 =$

t) $3 \times 1\,000 =$

u) $9 \times 10 =$

v) $10 \times 10 =$

w) $10 \times 7 =$

x) $1\,000 \times 5 =$

Answers to Exercise Three

a) 8 000	b) 700	c) 40	d) 2 000	e) 30	f) 700	g) 0
h) 200	i) 100	j) 5 000	k) 0	l) 40	m) 200	n) 6 000
o) 500	p) 10 000	q) 70	r) 1 000	s) 400	t) 3 000	u) 90
v) 100	w) 70	x) 5 000				

Topic B: Self-Test

Mark /18

Aim 15/18

A. Find the products. Be sure to check your answers.

6 marks

a) $3 \times 10 =$

b) $6 \times 100 =$

c) $8 \times 1\,000 =$

d) $7 \times 1\,000 =$

e) $4 \times 100 =$

f) $5 \times 10 =$

B. Find the products. Be sure to check your answers.

6 marks

a) $10 \times 10 =$

b) $1\,000 \times 9 =$

c) $100 \times 10 =$

d) $100 \times 2 =$

e) $10 \times 0 =$

f) $1\,000 \times 4 =$

C. Find the products. Be sure to check your answers.

6 marks

a) $10 \times 6 =$

b) $1\,000 \times 7 =$

c) $100 \times 4 =$

d) $5 \times 1\,000 =$

e) $8 \times 10 =$

f) $10 \times 100 =$

Answers to Topic B Self-Test

A.

a) 30 b) 600 c) 8 000 d) 7 000 e) 400 f) 50

B.

a) 100 b) 9 000 c) 1 000 d) 200 e) 0 f) 4 000

C.

a) 60 b) 7 000 c) 400 d) 5 000 e) 80 f) 1 000

Topic C: Word Problems

Learning multiplication facts is very important. Once you know them all, you can use them to solve word problems.

Words such as **product**, **altogether** and **in all** tell you may need to multiply the numbers. Look for these words when reading word problems and underline them before trying to solve a problem. Circle the information that is given.

Example: Mr. Wong rides his bicycle 6 kilometres every day. How far will he ride altogether in 9 days?

Mr. Wong rides his bicycle 6 kilometres every day. How far will he ride altogether in 9 days?

You have circled 6 kilometres and 9 days. This is the information you will use to find the answer.

You have underlined “How far will he ride.” These words tell you to multiply.

$$\begin{array}{r} 6 \text{ kilometres} \\ \times 9 \text{ days} \\ \hline 54 \end{array}$$

Mr. Wong will ride 54 kilometres in 9 days.

Exercise One

Solve each of the following word problems. Be sure to underline the words that tell you to multiply. Circle the information that is given. Have your instructor check your underlining and circling.

- a) There are 5 rows of mailboxes in an apartment building. There are 7 mailboxes in each row. How many mailboxes are there in all?
- b) At the grocery store, there are 8 cans of corn in each row. There are 6 rows of corn. How many cans of corn are there altogether?
- c) There are 7 days in a week. How many days are there in 4 weeks?

d) Thalia walks 6 blocks each day going to and from college. How many blocks does she walk going to and from college 5 days a week?

e) There are 8 chairs around each table in the library. There are 9 tables in the library. How many chairs are around all the tables?

f) Barindra works 7 hours each day. How many hours will he work in 6 days?

g) Milton bought 5 cases of pop. Each case had 8 cans. How many cans of pop did Milton have?

h) There are 8 hotdogs in a package. How many hotdogs are there in 7 packages?

i) Solita placed 7 cupcakes on a plate. She filled 3 plates. How many cupcakes were there altogether?

Answers to Exercise One

a) 35 mailboxes

b) 48 cans

c) 28 days

d) 30 blocks

e) 72 chairs

f) 42 hours

g) 40 cans

h) 56 hotdogs

i) 21 cupcakes

Area

Area means **the surface that is inside a shape**. The units of measure of area are always **square units** (meaning having both length and width).

Rectangle

length



width

To find the area of a rectangle, multiply **length x width**.

Example A:

8 metres



3 metres

To find the area of the rectangle multiply **length x width**.

Area = length x width

Area = 8 metres x 3 metres

Area = 24 square metres

Example B:

4 centimetres



7 centimetres

To find the area of the rectangle multiply **length x width**.

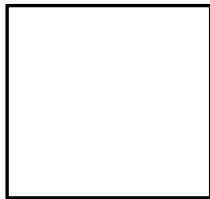
Area = length x width

Area = 4 centimetres x 7 centimetres

Area = 28 square centimetres

Square

side



side

To find the area of a square multiply **side x side**.

Example C:

9 metres



9 metres

To find the area of the square multiply **side x side**.

Area = side x side

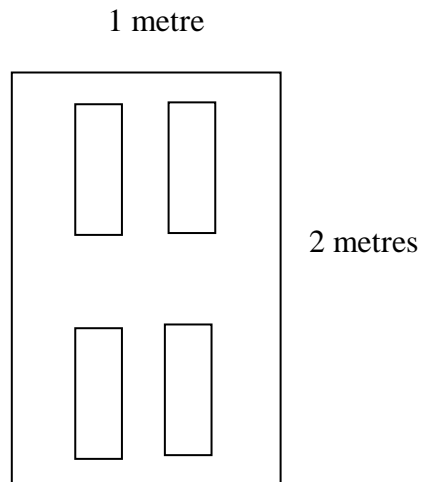
Area = 9 metres x 9 metres

Area = 81 square metres

Exercise Two

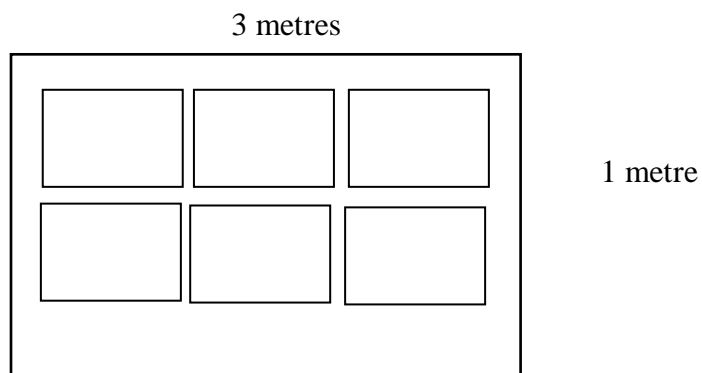
Find the area of each shape. Be sure to include the units of measure in your answer. Check your work using the answer key at the end of the exercise.

a)



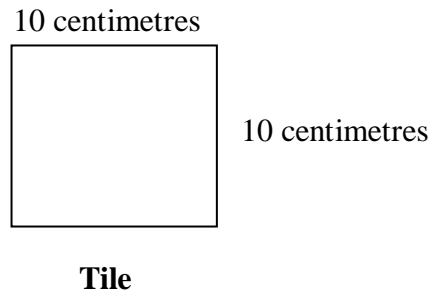
Door

b)



Window

c)



d) A floor is 8 metres long and 4 metres wide. What is the area of the floor?
(Hint: Draw a picture.)

Answers to Exercise Two

a) 2 square metres

b) 3 square metres

c) 100 square centimetres

d) 32 square metres

A. Solve each of the following word problems.

8 marks

Be sure to include the unit of measure in your answer. (2 marks each)

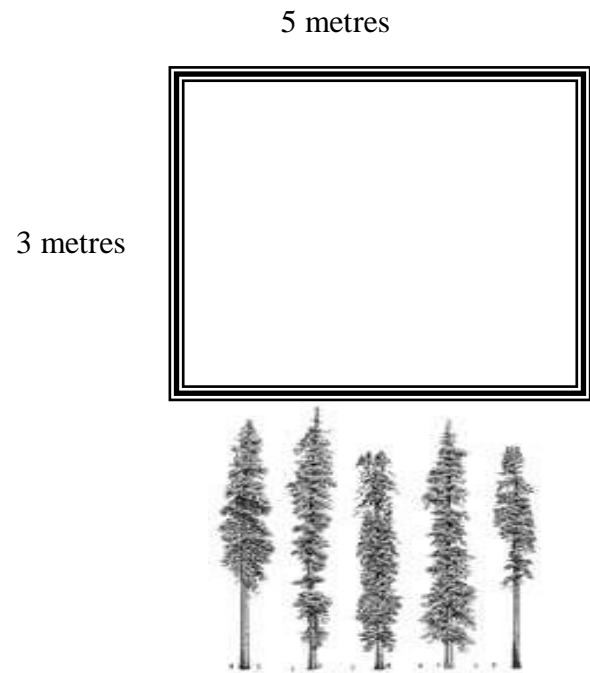
Be sure to circle information and underline what is being asked.

a) Diego puts 6 apples into each bag. How many apples are there in 4 bags?

b) Alain wants to walk up 6 flights of stairs. There are 10 steps in each flight. How many steps will he have to walk up altogether?

c) In the metric system, 10 millimetres equals 1 centimetre. How many millimetres are there in 100 centimetres? (**Hint:** Multiply the number of centimeters by 10.)

d) Find the area of the picture



Answers to Topic C Self-Test

a) 24 apples b) 60 steps c) 1 000 millimetres d) 15 square metres

Unit 4 Review - Multiplication

You will now practice all the skills you learned in Unit 4. Check your work using the answer key at the end of the review

P. Find the products.

a)
$$\begin{array}{r} 0 \\ \times 7 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 4 \\ \times 9 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 3 \\ \times 5 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 2 \\ \times 3 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 3 \\ \times 8 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 6 \\ \times 6 \\ \hline \end{array}$$

g)
$$\begin{array}{r} 7 \\ \times 4 \\ \hline \end{array}$$

h)
$$\begin{array}{r} 8 \\ \times 8 \\ \hline \end{array}$$

i)
$$\begin{array}{r} 9 \\ \times 6 \\ \hline \end{array}$$

j)
$$\begin{array}{r} 6 \\ \times 5 \\ \hline \end{array}$$

k)
$$\begin{array}{r} 5 \\ \times 9 \\ \hline \end{array}$$

l)
$$\begin{array}{r} 9 \\ \times 9 \\ \hline \end{array}$$

m)
$$\begin{array}{r} 3 \\ \times 6 \\ \hline \end{array}$$

n)
$$\begin{array}{r} 4 \\ \times 8 \\ \hline \end{array}$$

o)
$$\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$$

p)
$$\begin{array}{r} 7 \\ \times 8 \\ \hline \end{array}$$

Q. Multiply across or horizontally.

a) $7 \times 7 =$

b) $9 \times 7 =$

c) $2 \times 9 =$

d) $4 \times 4 =$

e) $3 \times 4 =$

f) $5 \times 7 =$

g) $8 \times 5 =$

h) $6 \times 4 =$

R. Find the products.

a) $10 \times 4 =$

b) $7 \times 100 =$

c) $100 \times 5 =$

d) $1 \times 10 =$

e) $1\,000 \times 8 =$

f) $10 \times 9 =$

g) $100 \times 8 =$

h) $7 \times 1\,000 =$

i) $1\,000 \times 2 =$

j) $6 \times 10 =$

k) $9 \times 100 =$

l) $4 \times 1\,000 =$

S. Word Problems.

a) During a fishing derby, 8 people caught 7 fish each. How many fish were caught in all?

b) Manuel was told to make 10 rows of 6 cans each. How many cans were there in all?

c) For graduation, there were 10 rows of 100 chairs each. How many chairs were there altogether?

d) In the cafeteria, there are 9 tables with 8 chairs at each table. How many chairs are there in all?

e) Find the area of the rug. Remember to include the units of measure.

9 metres

7 metres



f) Find the area of the photograph.

7 centimetres



10 centimetres

Answers to Unit 4 Review**A.**

- | | | | | | |
|-------|-------|-------|-------|-------|-------|
| a) 0 | b) 36 | c) 15 | d) 6 | e) 24 | f) 36 |
| g) 28 | h) 64 | i) 54 | j) 30 | k) 45 | l) 81 |
| m) 18 | n) 32 | o) 48 | p) 56 | | |

B.

- | | | | | | |
|-------|-------|-------|-------|-------|-------|
| a) 49 | b) 63 | c) 18 | d) 16 | e) 12 | f) 35 |
| g) 40 | h) 24 | | | | |

C.

- | | | | | | |
|--------|----------|----------|-------|----------|----------|
| a) 40 | b) 700 | c) 500 | d) 10 | e) 8 000 | f) 90 |
| g) 800 | h) 7 000 | i) 2 000 | j) 60 | k) 900 | l) 4 000 |

D.

- | | | |
|--------------|---------------------|--------------------------|
| a) 56 fish | b) 60 cans | c) 1 000 chairs |
| d) 72 chairs | e) 63 square metres | f) 70 square centimetres |

Unit 5

Making Change, Time & Perimeter

Topic A: Counting to Make Change

Practice your counting by filling in the counting chart. Have your instructor check your chart when you are done.

0	1	2	3	4	5	6	7	8	9
10									

Use your counting chart and start at 0. Count five and write down that number.

0	5	10							

If you had a pile of nickels or five dollar bills and wanted to know how much money you have, you would count by 5's.

Use your counting chart and starting at 0. Count ten and write down that number.

0	10	20							

If you had a pile of dimes or ten dollar bills and wanted to know how much money you have, you would count by 10's.

Use your counting chart and starting at 0. Count twenty-five and write down that number.

0	25			
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If you had a pile of quarters and wanted to know how much money you have, you would count by 25's.

Exercise One

Write the missing numerals. Check your work using the answer key at the end of the exercise.

a) Count by 5's.

0		10		20		30		40	
50		60		70		80		90	

b) Count by 5's.

0	5		15		25		35		45
	55		65		75		85		95

c) Count by 5's.

0									

d) Count by 10's.

0	10		30		50		70		90

e) Count by 10's.

0		20		40		60		80	
100									

f) Count by 10's.

0									

g) Count by 25's.

0	25		75	
----------	-----------	--	-----------	--

h) Count by 25's.

0		50		100
----------	--	-----------	--	------------

i) Count by 25's.

0				
----------	--	--	--	--

Answers to Exercise One

a)

0	5	10	15	20	25	30	35	40	45
50	55	60	65	70	75	80	85	90	95
100									

b)

0	5	10	15	20	25	30	35	40	45
50	55	60	65	70	75	80	85	90	95
100									

c)

0	5	10	15	20	25	30	35	40	45
50	55	60	65	70	75	80	85	90	95
100									

d)

0	10	20	30	40	50	60	70	80	90
100									

e)

0	10	20	30	40	50	60	70	80	90
100									

f)

0	10	20	30	40	50	60	70	80	90
100									

g)

0	25	50	75	100
----------	-----------	-----------	-----------	------------

h)

0	25	50	75	100
----------	-----------	-----------	-----------	------------

i)

0	25	50	75	100
----------	-----------	-----------	-----------	------------

Note: There is no self-test for this topic.

Topic B: Making Change

When you make change, your first goal is to get a number that ends in 0 or 5. So for example, if you bought something for 53¢ , the first thing to do would be to get to 55¢ . Check out example A below.

Example A: 53¢ to 55¢

To get from 53¢ to 55¢ , you would need 2 pennies.

Example B: 20¢ to 25¢

To get from 20¢ to 25¢ , you would need 1 nickel.

Example C: 50¢ to 75¢

to get from 50¢ to 75¢ , you would need 1 quarter.

Exercise One

Circle the number of coins you would need to get from the first number to the second number. Make sure to use the least number of coins you can. Check your work using the answer key at the end of the exercise.

a) 32¢ to 35¢



b) 48¢ to 50¢



c) 16¢ to 20¢



d) 67¢ to 70¢



e) 10¢ to 15¢



f) 35¢ to 40¢



g) 55¢ to 60¢



h) 85¢ to 90¢



i) 60¢ to 70¢



j) 80¢ to 90¢



k) 30¢ to 40¢



l) 15¢ to 25¢



m) 25¢ to 50¢



n) 50¢ to 75¢



o) 75¢ to \$1.00



p) 45¢ to 50¢



q) 21¢ to 25¢



r) 55¢ to 65¢



s) 45¢ to 50¢



t) 40¢ to 50¢



u) 70¢ to 80¢



Answers to Exercise One

- a) 3 pennies b) 2 pennies c) 4 pennies d) 3 pennies e) 1 nickel f) 1 nickel
g) 1 nickel h) 1 nickel i) 1 dime j) 1 dime k) 1 dime l) 1 dime
m) 1 quarter n) 1 quarter o) 1 quarter p) 1 nickel q) 4 pennies r) 1 dime
s) 1 nickel t) 1 dime u) 1 dime

Exercise Two

State the number and kind of coins you would need to get from the first number to the second number. Make sure you use the least number of coins as possible. Check your work using the answer key at the end of the exercise.

Example: 56¢ to 60¢

4 pennies to get to 60¢

a) 27¢ to 30¢

b) 35¢ to 45¢

c) 90¢ to 95¢

d) 25¢ to 50¢

e) 54¢ to 55¢

f) 25¢ to 50¢

g) 65¢ to 75¢

h) 40¢ to 45¢

i) 75¢ to \$1.00

j) 41¢ to 45¢

k) 5¢ to 15¢

l) 55¢ to 65¢

m) 20¢ to 25¢

n) 50¢ to 75¢

o) 88¢ to 90¢

p) 25¢ to 75¢

q) 85¢ to 95¢

r) 50¢ to \$1.00

s) 95¢ to \$1.00

t) 77¢ to 80¢

u) 45¢ to 50¢

Answers to Exercise Two

- a) 3 pennies b) 1 dime c) 1 nickel d) 1 quarter e) 1 penny f) 1 quarter g) 1 dime
h) 1 nickel i) 1 quarter j) 4 pennies k) 1 dime l) 1 dime m) 1 nickel n) 1 quarter
o) 2 pennies p) 2 quarters q) 1 dime r) 2 quarters s) 1 nickel t) 3 pennies u) 1 nickel

Example A: 28¢ to 50¢

You would need 2 pennies to get to 30¢.
Then you would need 2 dimes to get to 50¢.

Example B: 36¢ to 50¢

You would need 4 pennies to get to 40¢.
Then you would need 1 dime to get to 50¢.

Example C: 60¢ to 75¢

You would need 1 nickel to get to 65¢.
Then you would need 1 dime to get to 75¢.

OR

You could also begin with 1 dime to get to 70¢.
Then you would need 1 nickel to get to 75¢.

Exercise Three

State the number and kind of coins you would need to get from the first number to the second number. Make sure you use the least number of coins as possible. Check your work using the answer key at the end of the exercise.

Example: **67¢ to 75¢**

3 pennies to get to 70¢

1 nickel to get to 75¢.

a) 26¢ to 50¢

b) 47¢ to 75¢

c) 69¢ to 75¢

d) 18¢ to 25¢

e) 34¢ to 50¢

f) 51¢ to 75¢

g) 78¢ to \$1.00

h) 82¢ to \$1.00

i) 93¢ to \$1.00

j) 3¢ to 25¢

k) 61¢ to 75¢

l) 58¢ to 75¢

m) 22¢ to 50¢

n) 64¢ to 75¢

o) 9¢ to 25¢

p) 72¢ to \$1.00

q) 43¢ to 75¢

r) 84¢ to \$1.00

s) 37¢ to 50¢

t) 86¢ to \$1.00

u) 11¢ to 25¢

Answers to Exercise Three

- | | | |
|-------------------------|-----------------------------------|--------------------------------|
| a) 4 pennies, 2 dimes | b) 3 pennies, 1 quarter | c) 1 penny, 1 nickel |
| d) 2 pennies, 1 nickel | e) 1 penny, 1 nickel, 1 dime | f) 4 pennies, 2 dimes |
| g) 2 pennies, 2 dimes | h) 3 pennies, 1 nickel, 1 dime | i) 2 pennies, 1 nickel |
| j) 2 pennies, 2 dimes | k) 4 pennies, 1 dime | l) 2 pennies, 1 nickel, 1 dime |
| m) 3 pennies, 1 quarter | n) 1 penny, 1 dime | o) 1 penny, 1 nickel, 1 dime |
| p) 3 pennies, 1 quarter | q) 2 pennies, 1 nickel, 1 quarter | r) 1 penny, 1 nickel, 1 dime |
| s) 3 pennies, 1 dime | t) 4 pennies, 1 dime | u) 4 pennies, 1 dime |

Exercise Four

State the number and kind of coins you would need to get from the first number to the second number. Make sure you use the least number of coins as possible. Check your work using the answer key at the end of the exercise.

Example: **67¢ to 75¢**

3 pennies to get to 70¢

1 nickel to get to 75¢.

a) 33¢ to 50¢

b) 6¢ to 25¢

c) 76¢ to \$1.00

d) 53¢ to 75¢

e) 62¢ to 75¢

f) 17¢ to 50¢

g) 92¢ to \$1.00

h) 26¢ to 50¢

i) 46¢ to \$1.00

j) 73¢ to \$1.00

k) 83¢ to \$1.00

l) 4¢ to 25¢

m) 36¢ to 50¢

n) 98¢ to \$1.00

o) 63¢ to 75¢

p) 42¢ to 50¢

q) 19¢ to 25¢

r) 23¢ to 50¢

s) 56¢ to 75¢

t) 31¢ to 50¢

u) 89¢ to \$1.00

Answers to Exercise Four

- | | | |
|--------------------------------|--------------------------------|-----------------------------------|
| a) 2 pennies, 1 nickel, 1 dime | b) 4 pennies, 1 nickel, 1 dime | c) 4 pennies, 2 dimes |
| d) 2 pennies, 2 dimes | e) 3 pennies, 1 dime | f) 3 pennies, 1 nickel, 1 quarter |
| g) 3 pennies, 1 nickel | h) 4 pennies, 2 dimes | i) 4 pennies, 2 quarters |
| j) 2 pennies, 1 quarter | k) 2 pennies, 1 nickel, 1 dime | l) 1 penny, 2 dimes |
| m) 4 pennies, 1 dime | n) 2 pennies | o) 2 pennies, 1 dime |
| p) 3 pennies, 1 nickel | q) 1 penny, 1 nickel | r) 2 pennies, 1 quarter |
| s) 4 pennies, 1 nickel, 1 dime | t) 4 pennies, 1 nickel, 1 dime | s) 1 penny, 1 dime |

Exercise Five

State the number and kind of coins you would need to get change from \$1.00. Make sure you use the least number of coins as possible. Check your work using the answer key at the end of the exercise.

Example: 45¢ to \$1.00

1 nickel to get to 50¢

2 quarters to get to \$1.00.

a) 99¢

b) 57¢

c) 38¢

d) 13¢

e) 49¢

f) 74¢

g) 81¢

h) 70¢

i) 29¢

j) 8¢

k) 66¢

l) 12¢

m) 7¢

n) 39¢

o) 52¢

p) 83¢

q) 97¢

r) 48¢

s) 61¢

t) 26¢

u) 91¢

Answers to Exercise Five

- | | |
|--|--|
| a) 1 penny | b) 3 pennies, 1 nickel, 1 dime 1 quarter |
| c) 2 pennies, 1 dime, 2 quarters | d) 2 pennies, 1 dime, 3 quarters |
| e) 1 penny, 2 quarters | f) 1 penny, 1 quarter |
| g) 4 pennies, 1 nickel, 1 dime | h) 1 nickel, 1 quarter |
| i) 1 penny, 2 dimes, 2 quarters | j) 2 pennies, 1 nickel, 1 dime, 3 quarters |
| k) 4 pennies, 1 nickel, 1 quarter | l) 3 pennies, 1 dime, 3 quarters |
| m) 3 pennies, 1 nickel, 1 dime, 3 quarters | n) 1 penny, 1 dime, 2 quarters |
| o) 3 pennies, 2 dimes, 1 quarter | p) 2 pennies, 1 nickel, 1 dime |
| q) 3 pennies | r) 2 pennies, 2 quarters |
| s) 4 pennies, 1 dime, 1 quarter | t) 4 pennies, 2 dimes, 2 quarters |
| u) 4 pennies, 1 nickel | |

Exercise Six

State the number and kind of coins you would need to get change from \$1.00. Make sure you use the least number of coins as possible. Check your work using the answer key at the end of the exercise.

a)



2 oranges cost 69¢

1 penny, 1 nickel and 1 quarter

b)



3 pencils cost 78¢

c)



1 roll of toilet paper costs 27¢

d)



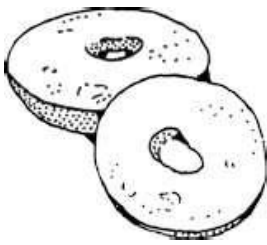
a can of sardines costs 79¢

e)



1 lemon costs 39¢

f)



a bagel costs 54¢

g)



a roll of paper towels costs 83¢

h)



a jar of baby food costs 75¢

i)



a box of kleenex costs 79¢

j)



a bag of candy costs 69¢

Answers to Exercise Six

b) 3 pennies, 2 dimes

d) 1 penny, 2 dimes

f) 1 penny, 2 dimes, 1 quarter

h) 1 quarter

j) 1 penny, 1 nickel, 1 quarter

c) 3 pennies, 2 dimes, 2 quarters

e) 1 penny, 1 dime, 2 quarters

g) 2 pennies, 1 nickel, 1 dime

i) 1 penny, 2 dimes

Exercise Seven

State the number and kind of coins you would need to get change from \$1.00. Make sure you use the least number of coins as possible. Check your work using the answer key at the end of the exercise.

a) Mrs. Bakshi bought two flower pots that cost 88¢. What change will she get from \$1.00?

b) Poloma bought a can of cat food for 71¢. What change will she get from \$1.00?

c) Two apples cost 76¢. What change will you get from \$1.00?

d) A pen costs 69¢. What change will you get from \$1.00?

Answers to Exercise Sven

a) 2 pennies, 1 dime

b) 4 pennies, 1 quarter

c) 4 pennies, 2 dimes

d) 1 penny, 1 nickel, 1 quarter

Topic B: Self-Test

Mark /21

Aim 17/21

A. Circle the number of coins needed to get from the first number to the second number. Use the least number of coins. 4 marks

a) 76¢ to 80¢



b) 20¢ to 25¢



c) 40¢ to 50¢



d) 50¢ to 75¢



B. State the number and kind of coin needed to get from the first number to the second number. 4 marks

a) 48¢ to 50¢

b) 70¢ to 75¢

c) 90¢ to \$1.00

d) 25¢ to 50¢

C. State the number and kind of coins you would need to get from the first number to the second number. Make sure you use the least number of coins as possible. 4 marks

a) 37¢ to 50¢

b) 16¢ to 50¢

c) 52¢ to 75¢

d) 81¢ to \$1.00

D. State the number and kind of coins you would need to get change from \$1.00. Make sure you use the least number of coins as possible. 9 marks

a) 23¢

b) 41¢

c) 68¢

d) 72¢

e) a plastic beach shovel costs 89¢

f) 2 plums cost 68¢

g) a head of lettuce cost 59¢

h) Mr. Smith bought one can of frozen juice for 67¢ . What change will get from $\$1.00$?

i) Mrs. Nishi bought a can of pineapple for 83¢ . How much change will she get back from $\$1.00$?

Answers to Topic B Self-Test

A.

- a) 4 pennies b) 1 nickel c) 1 dime d) 1 quarter

B.

- a) 2 pennies b) 1 nickel c) 1 dime d) 1 quarter

C.

- a) 3 pennies, 1 dime b) 4 pennies, 1 nickel, 1 quarter c) 3 pennies, 2 dimes
d) 4 pennies, 1 dime

D.

- a) 2 pennies, 3 quarters b) 4 pennies, 1 nickel, 2 quarters
c) 2 pennies, 1 nickel, 1 quarter d) 3 pennies, 1 quarter
e) 1 penny, 1 dime f) 2 pennies, 1 nickel, 1 quarter
g) 1 penny, 1 nickel, 1 dime, 1 quarter h) 3 pennies, 1 nickel, 1 quarter
i) 2 pennies, 1 nickel, 1 dime

Topic C: Telling Time

We have always been interested in keeping track of time. Sundials were the first way used to keep track of time. The sundial had limits. It needed the sun and could not keep track of time at night. Through the centuries, many things have been used to keep track of time. In our modern society, we have used clocks. There are two types of clocks – digital and analog. Digital clocks display the time as numbers.

Analog clocks are clocks with hands. The shorter hand tells the hour and the longer hand tells the minutes. An easy way to remember the hour hand and the minutes hand is that **hour** is a shorter word than **minute** and the shorter hand tells the hour.

In an analog clock, the minute hand travels faster than the hour hand as it has to cover 60 minutes. The hour hand only needs to travel between the numerals in the same time it takes the minute hand to cover 60 minutes.

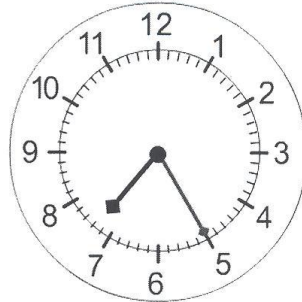
To tell what time it is, look at the shorter hand to figure out what hour it is. Next, look at the minute hand to figure out the minutes. Each numeral of the clock represents a certain number of minutes. Look at the chart.

Numeral	Minutes
1	5
2	10
3	15
4	20
5	25
6	30
7	35
8	40
9	45
10	50
11	55
12	o'clock

Exercise One

Write the time shown on each clock. Check your work using the answer key at the end of the exercise.

Example A:



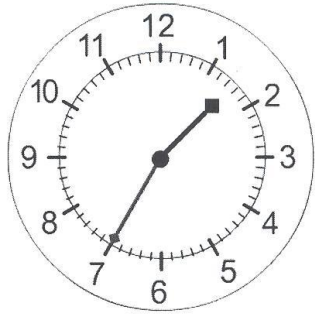
The shorter hand is closer to the 7. The longer hand is before the six. This means that the hour is 7. The longer hand is pointing to the 5. This means 25 minutes (check the chart on the page before). The time would be written as 7:25.

Example B:

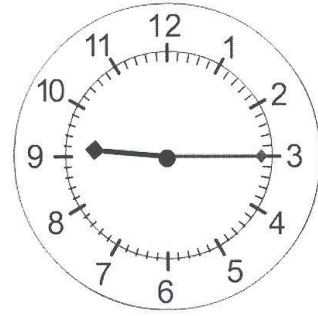


Look at the shorter hand. If the longer hand is past the six, then the hour is the numeral before the one the shorter hand is pointing at. This means that the hour is 12. The longer hand is pointing at the 10. This means 50 minutes (check the chart on the page before). The time would be written as 12:50.

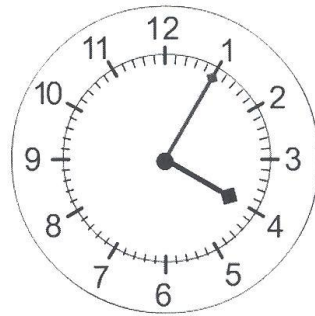
a)



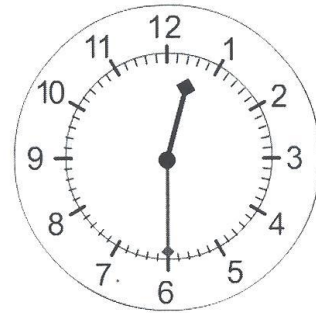
b)



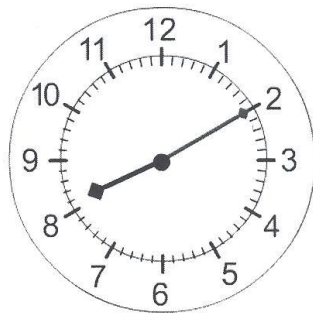
c)



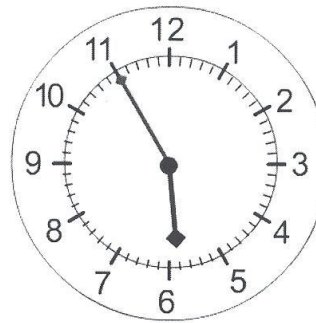
d)



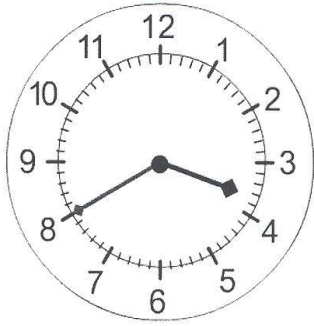
e)



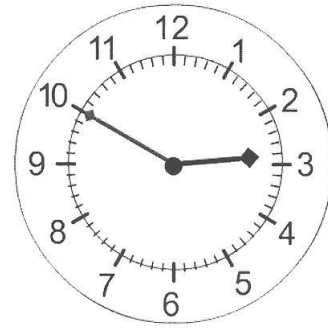
f)



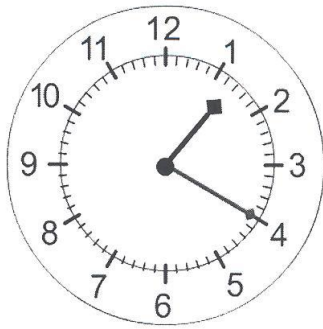
g)



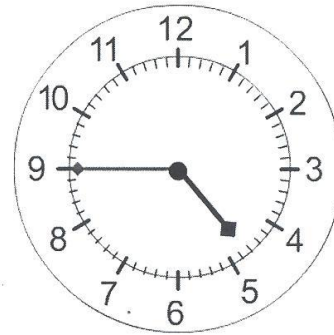
h)



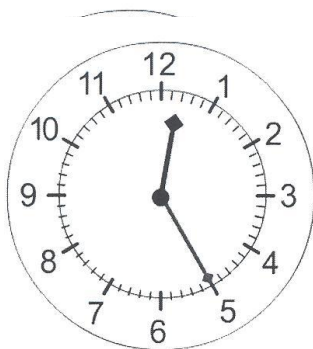
i)



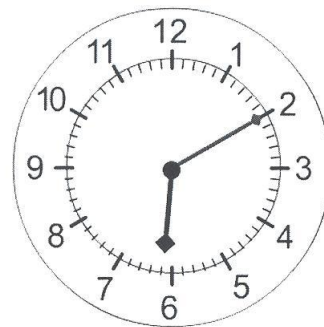
j)



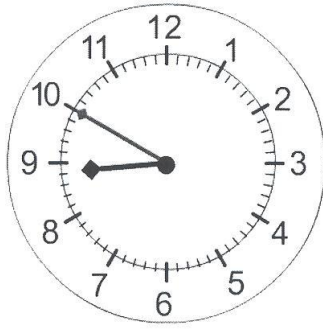
k)



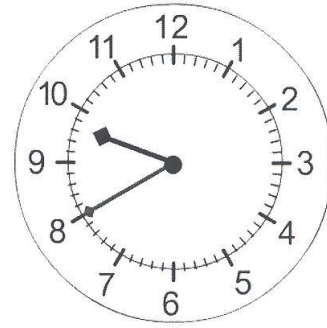
l)



m)



n)



Answers to Exercise One

a) 1:35

b) 9:15

c) 4:05

d) 12:30

e) 8:10

f) 5:55

g) 3:40

h) 2:50

i) 1:20

j) 4:45

k) 12:25

l) 6:10

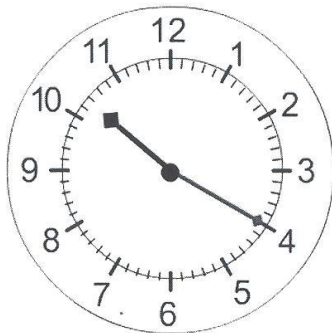
m) 8:50

n) 9:40

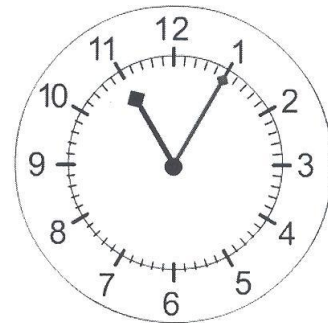
Exercise Two

Write the time shown on each clock. Check your work using the answer key at the end of the exercise.

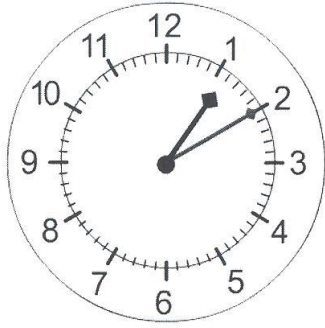
a)



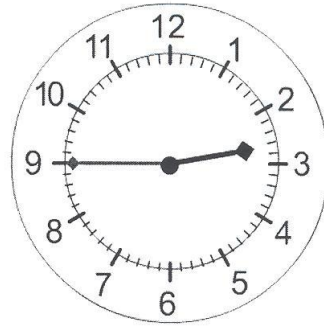
b)



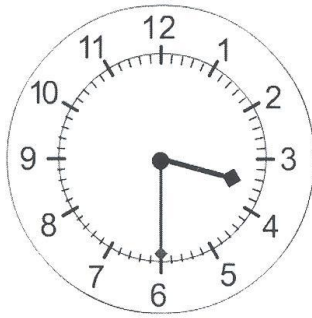
c)



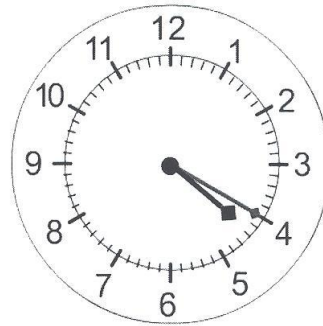
d)



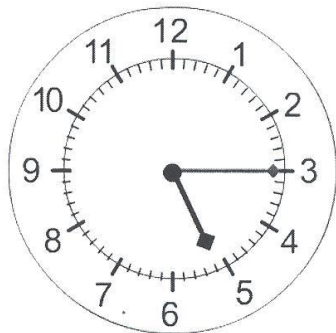
e)



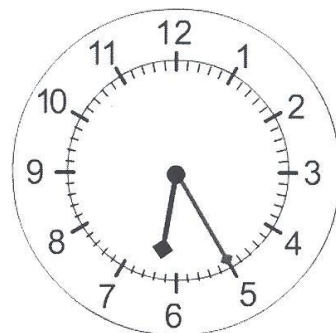
f)



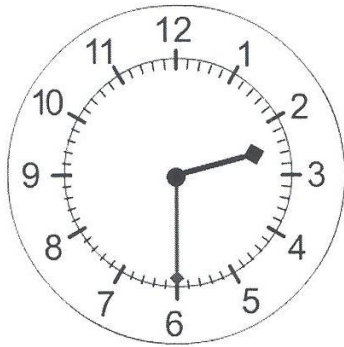
g)



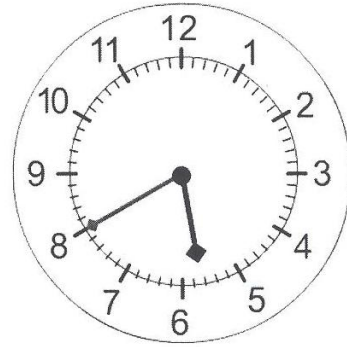
h)



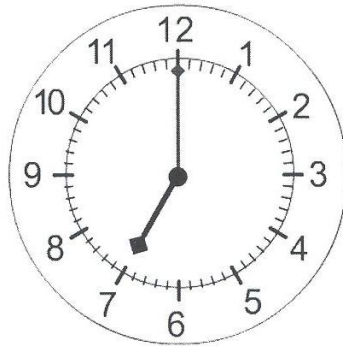
i)



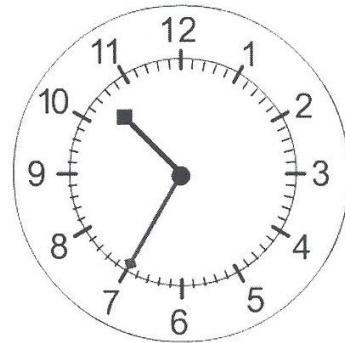
j)



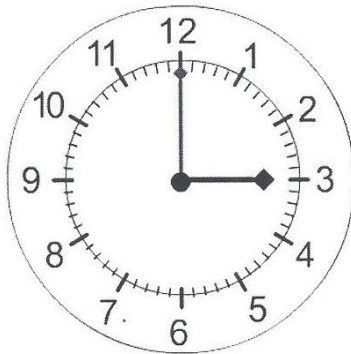
k)



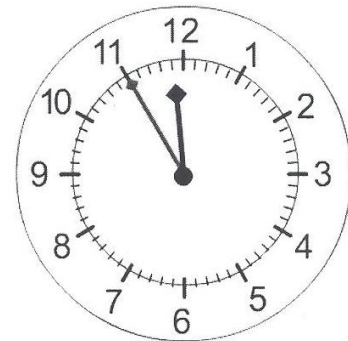
l)



m)



n)



Answers to Exercise Two

- | | | | |
|----------|----------|---------|----------|
| a) 10:20 | b) 11:05 | c) 1:10 | d) 2:45 |
| e) 3:30 | f) 4:20 | g) 5:15 | h) 6:25 |
| i) 2:30 | j) 5:40 | k) 7:00 | l) 10:35 |
| m) 3:00 | n) 11:55 | | |

There are 60 minutes in an hour. The numbers on the clock show 5-minute intervals. You are getting good at telling time when the minute hand is stopped at one of the numbers on the clock. If the minute hand is between the numbers, look at the number before and count by ones from there.

Example:

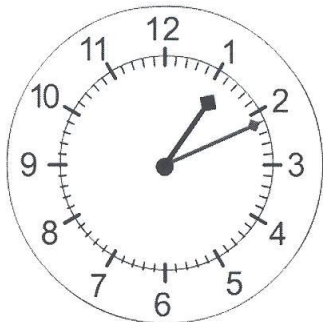


The time on this clock is 3:27. The minute hand is just past the 5 which is 25 minutes and counting from there two lines is 27 minutes.

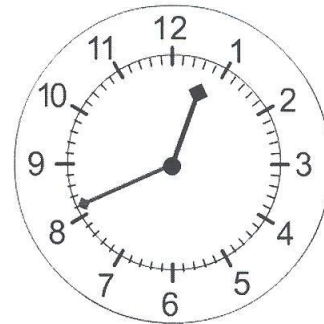
Exercise Three

Write the time shown on each clock. Check your work using the answer key at the end of the exercise.

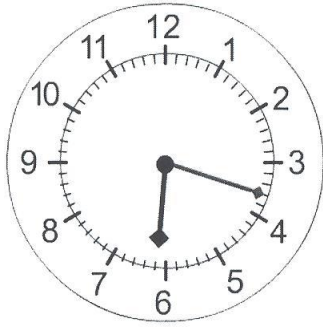
a)



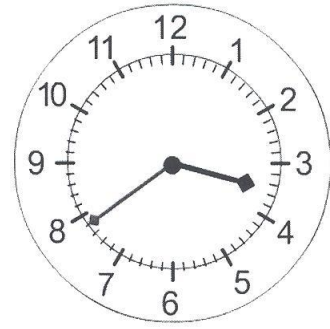
b)



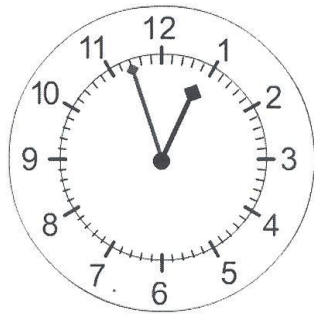
c)



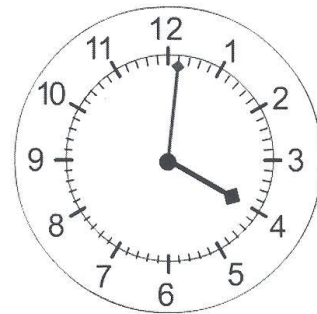
d)



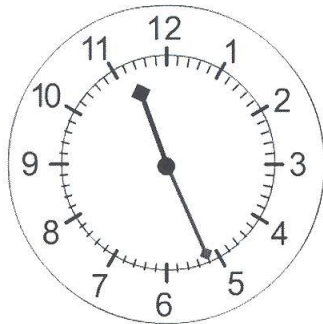
e)



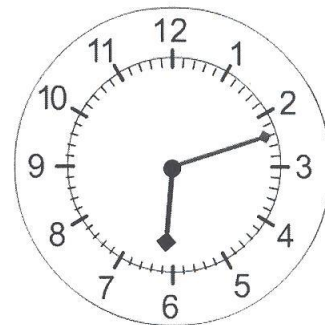
f)



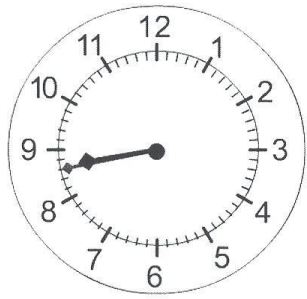
g)



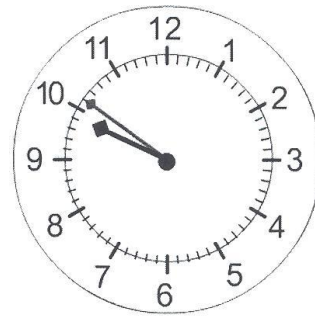
h)



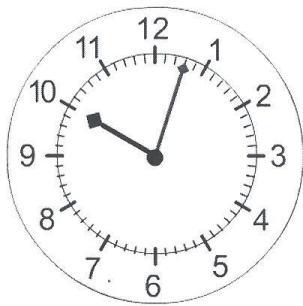
i)



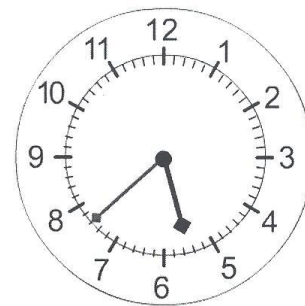
j)



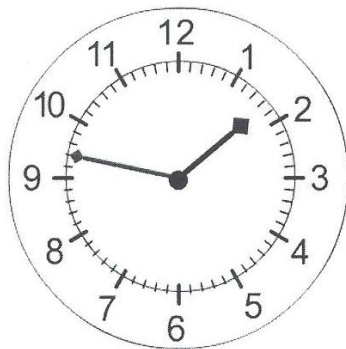
k)



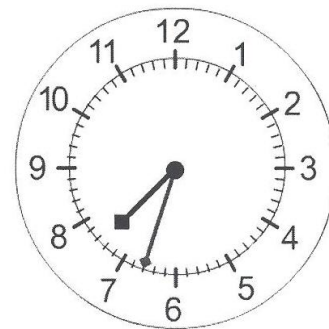
l)



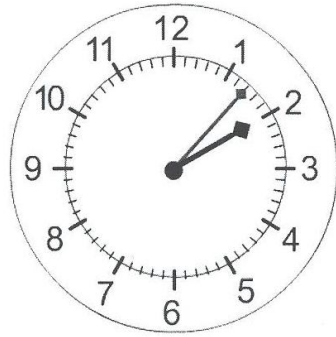
m)



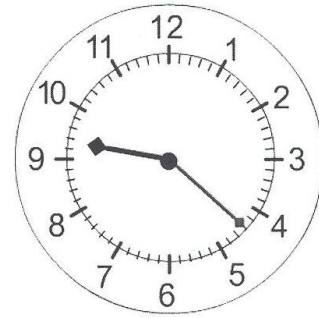
n)



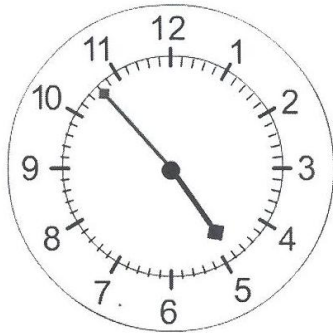
o)



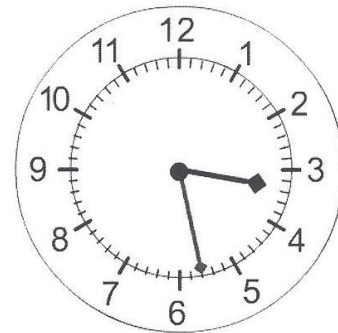
p)



q)



r)



Answers to Exercise Three

a) 1:11

b) 12:41

c) 6:18

d) 3:39

e) 12:57

f) 4:01

g) 11:26

h) 6:12

i) 8:43

j) 9:51

k) 10:03

l) 5:38

m) 1:47

n) 7:33

o) 2:07

p) 9:22

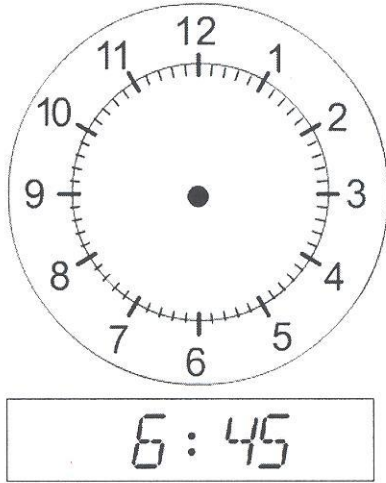
q) 4:53

r) 3:28

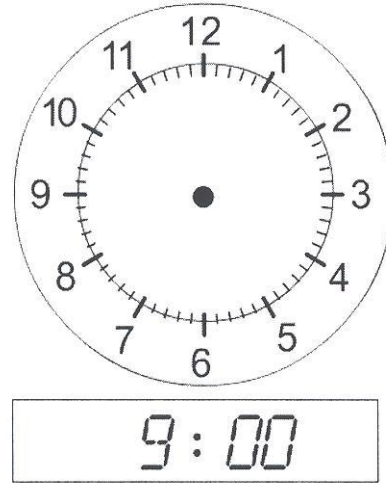
Exercise Four

Under each clock is a time on a digital clock. Put the hands on the analog clock to show the digital time. Check your work using the answer key at the end of the exercise.

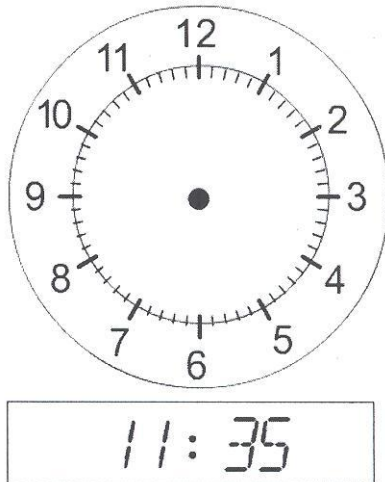
a)



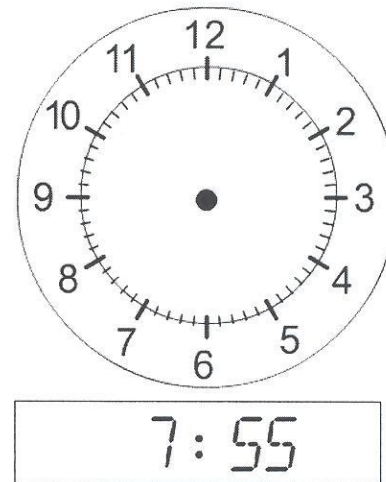
b)



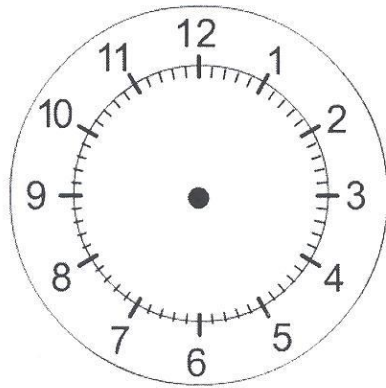
c)



d)

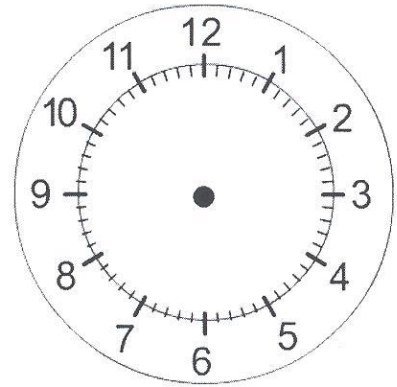


e)



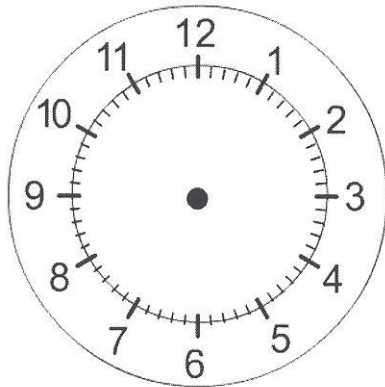
8:30

f)



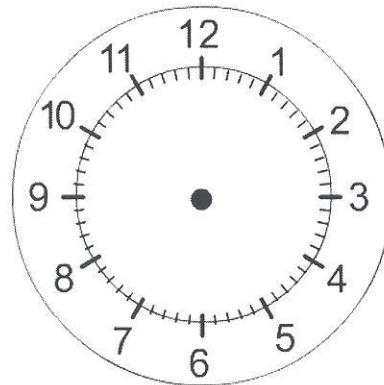
10:05

g)



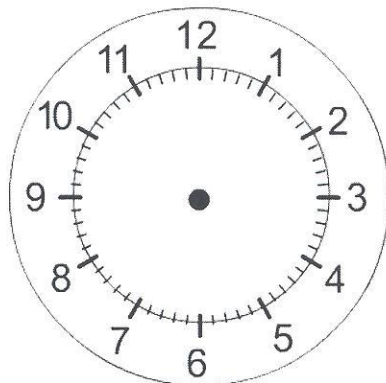
2:15

h)



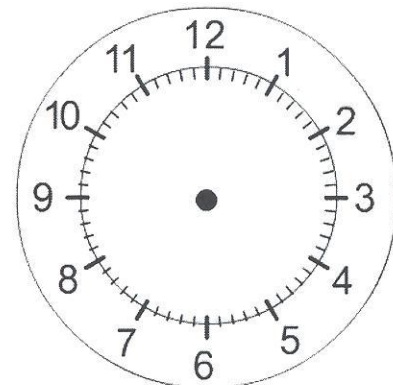
11:25

i)



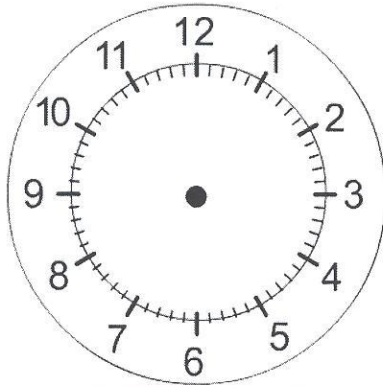
4:10

j)



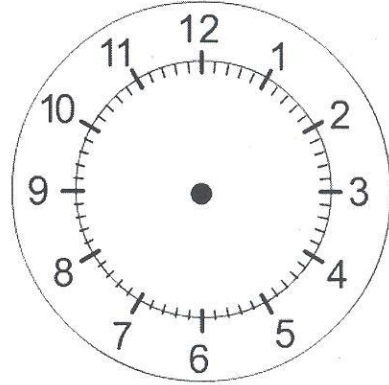
1:55

k)



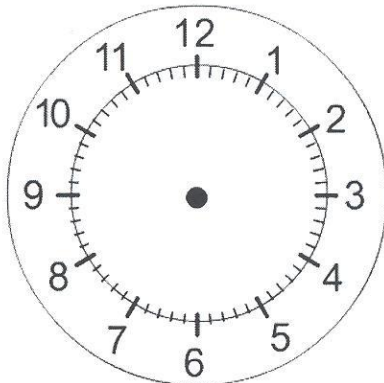
5:05

l)



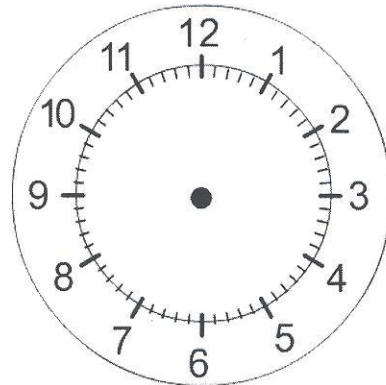
9:50

m)



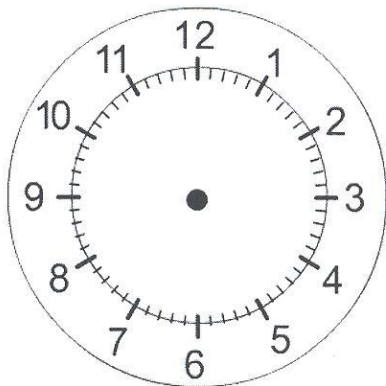
12:15

n)



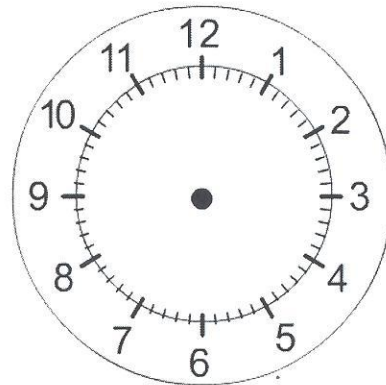
3:55

o)



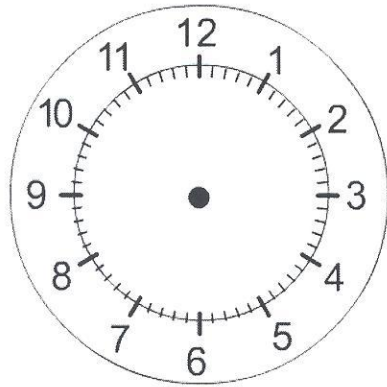
8:40

p)



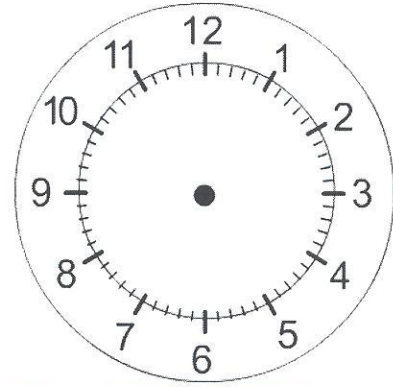
6:00

q)



10:45

r)



7:20

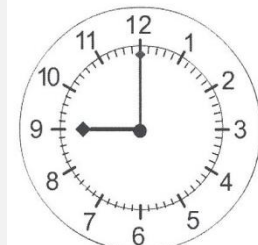
Answers to Exercise Four

a)



6:45

b)



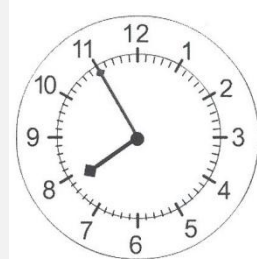
9:00

c)



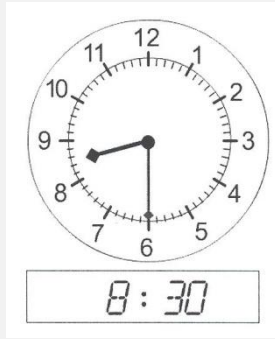
11:35

d)



7:55

e)



f)



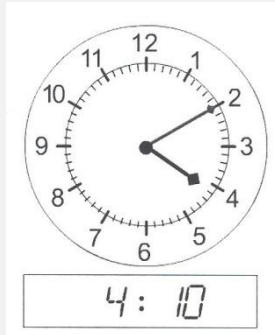
g)



h)



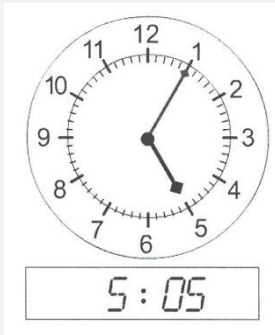
i)



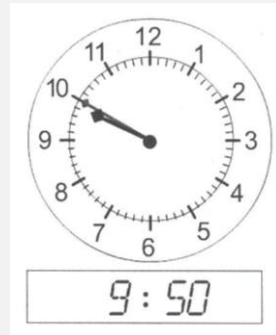
j)



k)



l)



m)



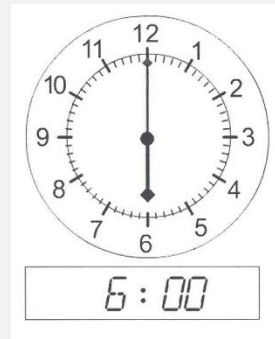
n)



o)



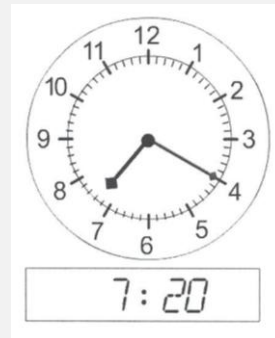
p)



q)



r)



24-hour Clock

Your friend said she would meet you at 8:00 o'clock. Does that mean in the morning or the evening? We use a.m. and p.m. to know whether it is morning or evening.

Another way to avoid confusion is by using the **24-hour clock**. Airlines, military and health care are examples of places where the 24-hour clock is used.

With the 12-hour clock, each of the hours is repeated in a day. In the 24-hour clock, each hour in a day is counted giving us 24 hours. In the 24-hour clock, 12:00 a.m. can be written as 0000 or 2400. 0000 is the start of a new day, while 2400 is the end of the day.

We write times with 4 digits. The first two digits are the hours and the next two digits are the minutes.

12-hour clock	24-hour clock	12-hour clock	24-hour clock
12:00 a.m.	0000 or 2400	12:00 p.m.	1200
1:00 a.m.	0100	1:00 p.m.	1300
2:00 a.m.	0200	2:00 p.m.	1400
3:00 a.m.	0300	3:00 p.m.	1500
4:00 a.m.	0400	4:00 p.m.	1600
5:00 a.m.	0500	5:00 p.m.	1700
6:00 a.m.	0600	6:00 p.m.	1800
7:00 a.m.	0700	7:00 p.m.	1900
8:00 a.m.	0800	8:00 p.m.	2000
9:00 a.m.	0900	9:00 p.m.	2100
10:00 a.m.	1000	10:00 p.m.	2200
11:00 a.m.	1100	11:00 p.m.	2300

For example, 8:20 a.m. would be 0820, while 8:20 p.m. would be 2020.

To convert 12-hour clock to 24-hour clock, add 12 to the hour for any times after 1:00 p.m. to 11:59 p.m.

Example: **6:30 p.m.**

$$6:30 + 12:00 = 1830$$

Example: **10:30 p.m.**

$$10:30 + 12:00 = 2230$$

When writing times in 24-hour clock, we do not use a colon.

Exercise Five

Change each 12-hour clock time to 24-hour clock time. Watch carefully for a.m. and p.m. Remember: only times between 12:00 p.m. and 11:59 p.m. need to be changed. Check your work using the answer key at the end of the exercise.

a) 6:30 a.m.

b) 10:45 p.m.

c) 8:10 p.m.

d) 4:15 a.m.

e) 7:35 p.m.

f) 9:40 a.m.

g) 5:30 a.m.

h) 11:50 p.m.

i) 1:55 p.m.

j) 2:05 a.m.

k) 3:20 p.m.

l) 12:25 a.m.

Answers to Exercise Five

a) 0630

b) 2245

c) 2010

d) 0415

e) 1935

f) 0940

g) 0530

h) 2350

i) 1355

j) 0205

k) 1520

l) 0025

Exercise Five

Change each 12-hour clock time to 24-hour clock time. Watch carefully for a.m. and p.m. Remember: only times between 12:00 p.m. and 11:59 p.m. need to be changed. Check your work using the answer key at the end of the exercise.

a) 2:25 p.m.

b) 5:55 p.m.

c) 12:00 a.m.

d) 7:15 a.m.

e) 9:20 p.m.

f) 8:50 a.m.

g) 1:05 a.m.

h) 3:10 a.m.

i) 10:30 p.m.

j) 6:40 p.m.

k) 11:35 a.m.

l) 4:45 p.m.

Answers to Exercise Five

- | | | | |
|---------|---------|-----------------|----------|
| a) 1425 | b) 1755 | c) 0000 or 2400 | d) 0715 |
| e) 2120 | f) 0850 | g) 0105 | h) 0310. |
| i) 2230 | j) 1840 | k) 1135 | l) 1645 |

Exercise Six

Change each 24-hour clock time to 12-hour clock time. Watch carefully for a.m. and p.m. Check your work using the answer key at the end of the exercise.

a) 1204

b) 0822

c) 1842

d) 0425

e) 1440

f) 0910

g) 1735

h) 1605

i) 0342

j) 2305

k) 0550

l) 1330

Answers to Exercise Six

a) 12:04 p.m.

b) 8:22 a.m.

c) 6:42 p.m.

d) 4:25 a.m.

e) 2:40 p.m.

f) 9:10 a.m.

g) 5:35 p.m.

h) 4:05 p.m.

i) 3:42 a.m.

j) 11:05 p.m.

k) 5:50 a.m.

l) 1:30 p.m.

Exercise Seven

Change each 24-hour clock time to 12-hour clock time. Watch carefully for a.m. and p.m. Check your work using the answer key at the end of the exercise.

a) 2155

b) 0605

c) 1115

d) 0755

e) 0235

f) 1000

g) 1510

h) 2248

i) 1253

j) 1940

k) 2025

l) 0145

Answers to Exercise Seven

a) 9:55 p.m.

b) 6:05 a.m.

c) 11:15 a.m.

d) 7:55 a.m.

e) 2:35 a.m.

f) 10:00 a.m.

g) 3:10 p.m.

h) 10:48 p.m.

i) 12:53 p.m.

j) 7:40 p.m.

k) 8:25 p.m.

l) 1:45 a.m.

Exercise Eight

Below are the ferry schedules from West Vancouver (Horseshoe Bay) to Nainamo (Departure Bay) and Vancouver (Tsawwassen) to Nanaimo (Duke Point).. Change each 12-hour clock time to 24-hour clock time. Check your work using the answer key at the end of the exercise.

Leave West Vancouver (Horseshoe Bay)		Leave Vancouver (Tsawwassen)	
Departs	24-hour clock time	Departs	24-hour clock time
6:30 a.m.		5:15 a.m.	
8:30 a.m.		7:45 a.m.	
10:30 a.m.		10:15 a.m.	
12:30 p.m.		12:45 p.m.	
3:00 p.m.		3:15 p.m.	
5:00 p.m.		5:45 p.m.	
7:00 p.m.		8:15 p.m.	
9:00 p.m.		10:45 p.m.	

Answers to Exercise Eight

Leave West Vancouver (Horseshoe Bay)		Leave Vancouver (Tsawwassen)	
Departs	24-hour clock time	Departs	24-hour clock time
6:30 a.m.	0630	5:15 a.m.	0515
8:30 a.m.	0830	7:45 a.m.	0745
10:30 a.m.	1030	10:15 a.m.	1015
12:30 p.m.	1230	12:45 p.m.	1245
3:00 p.m.	1500	3:15 p.m.	1515
5:00 p.m.	1700	5:45 p.m.	1745
7:00 p.m.	1900	8:15 p.m.	2015
9:00 p.m.	2100	10:45 p.m.	2245

Exercise Nine

Below is the flight schedule for flights from Vancouver to Montreal. Change each 24-hour clock time to 12-hour clock time. Watch carefully for a.m. and p.m. Check your work using the answer key at the end of the exercise.

Vancouver to Montreal			
Depart	12-hour clock time	Arrive	12-hour clock time
0850		1631	
1115		1856	
1400		2141	
1620		0001 (next day)	
2330		0710 (next day)	
Montreal to Vancouver			
Depart	12-hour clock time	Arrive	12-hour clock time
0810		1037	
1015		1242	
1415		1636	
1755		2022	
1955		2222	

Answers to Exercise Nine

Vancouver to Montreal			
Depart	12-hour clock time	Arrive	12-hour clock time
0850	8:50 a.m.	1631	4:31 p.m.
1115	11:15 a.m.	1856	6:56 p.m.
1400	2:00 p.m.	2141	9:41 p.m.
1620	4:20 p.m.	0001 (next day)	12:01 a.m.
2330	11:30 p.m.	0710 (next day)	7:10 a.m.
Montreal to Vancouver			
Depart	12-hour clock time	Arrive	12-hour clock time
0810	8:10 a.m.	1037	10:37 a.m.
1015	10:15 a.m.	1242	12:42 p.m.
1415	2:15 p.m.	1636	4:36 p.m.
1755	5:55 p.m.	2022	8:22 p.m.
1955	7:55 p.m.	2222	10:22 p.m.

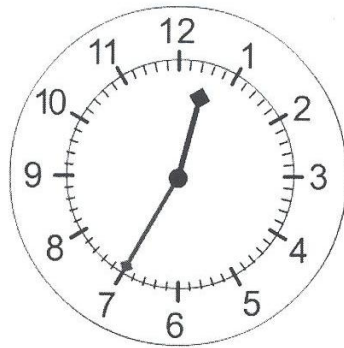
Topic C: Self-Test

Mark /22 Aim 17/22

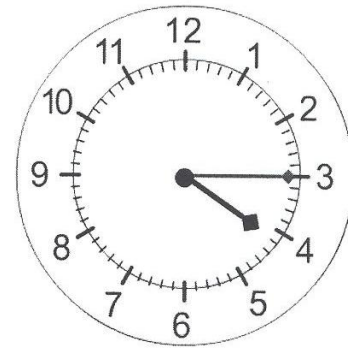
A. Write the time shown on each clock.

6 marks

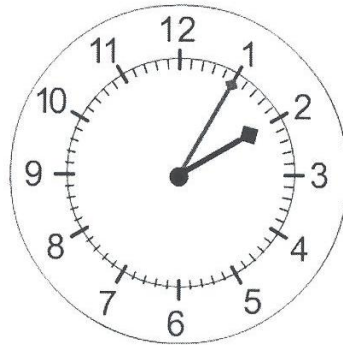
a)



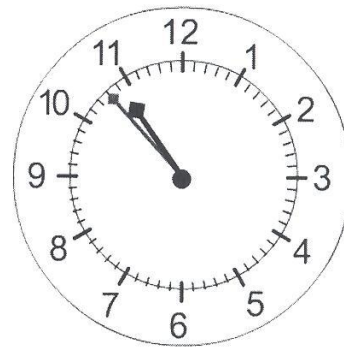
b)



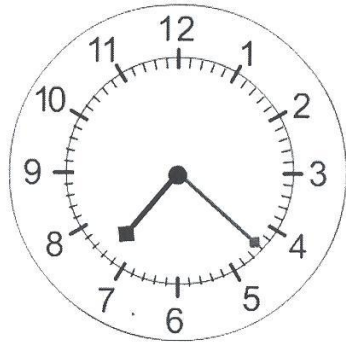
c)



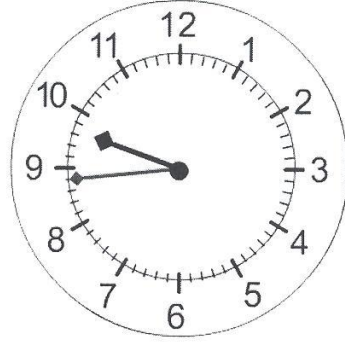
d)



e)

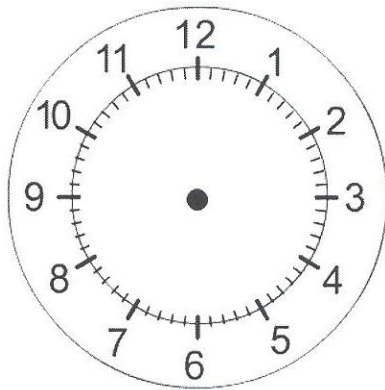


f)



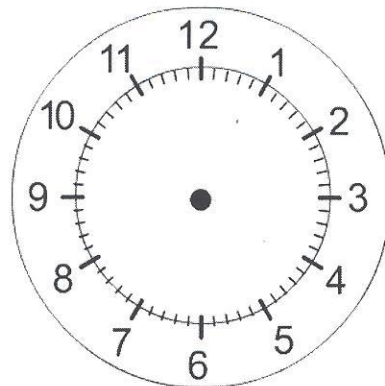
B. Under each clock is a time on a digital clock. Put the hands on the analog clock to show the digital time. **4 marks**

a)



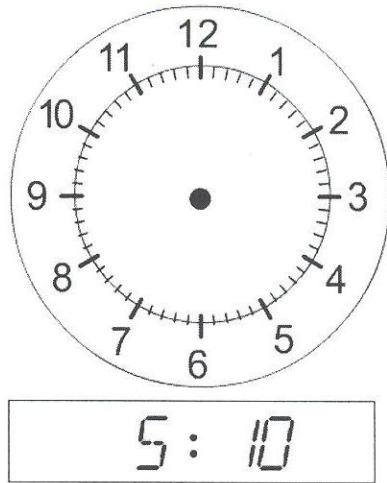
1:30

b)

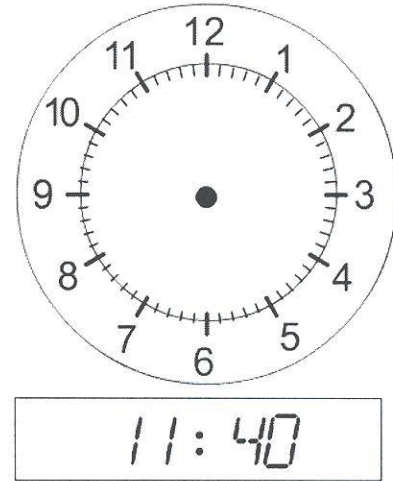


8:45

c)



d)



C. Change each 12-hour clock time to 24-hour clock time. Watch carefully for a.m. and p.m. 6 marks

a) 6:25 a.m.

b) 11:05 p.m.

c) 2:55 p.m.

d) 10:40 a.m.

e) 4:00 p.m.

f) 8:15 a.m.

D. Change each 24-hour clock time to 12-hour clock time. Watch carefully for a.m. and p.m. 6 marks

a) 0155

b) 0020

c) 1935

d) 0545

e) 1530

f) 2110

Answers to Topic C Self-Test

A.

- a) 12:35 b) 4:15 c) 2:10 d) 10:53 e) 7:22 f) 9:44

B.

a)

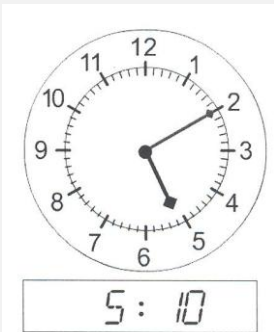


b)



B.

c)



d)



C.

- a) 0625 b) 2305 c) 1455 d) 1040 e) 1600 f) 0815

D.

- a) 1:55 a.m. b) 12:20 a.m. c) 7:35 p.m. d) 5:45 a.m.
e) 3:30 p.m. f) 9:10 p.m.

Topic D: Adding Units of Time

Sometimes we need to add units of time to find out how much in total it will take to do some job or to travel to some other place.

To add units of time, do this:

- Place the numbers to be added in columns – minutes with minutes, hours with hours, seconds with seconds
- Add each column. Be sure to write the unit of time.

Example A:

$$\begin{array}{r} 12 \text{ h, } 45 \text{ min} \\ + 10 \text{ h, } 05 \text{ min} \\ \hline \end{array}$$

Step 1: Add the minutes to the minutes

$$45 \text{ min} + 05 \text{ min} = 50 \text{ min}$$

$$\begin{array}{r} 12 \text{ h, } 45 \text{ min} \\ + 10 \text{ h, } 05 \text{ min} \\ \hline 50 \text{ min} \end{array}$$

Step 2: Add the hours to the hours

$$12 \text{ h} + 10 \text{ h} = 22 \text{ h}$$

$$\begin{array}{r} 12 \text{ h, } 45 \text{ min} \\ + 10 \text{ h, } 05 \text{ min} \\ \hline 22 \text{ h} \end{array}$$

The sum of

$$\begin{array}{r} 12 \text{ h, } 45 \text{ min} \\ + 10 \text{ h, } 05 \text{ min} \\ \hline 22\text{h, } 50 \text{ min} \end{array}$$

Example B:

$$\begin{array}{r} 4 \text{ h, } 50 \text{ min, } 15 \text{ s} \\ + \underline{21 \text{ h, } 05 \text{ min, } 40 \text{ s}} \end{array}$$

Step 1: Add the seconds to the seconds.

$$15 \text{ s} + 40 \text{ s} = 55 \text{ s}$$

$$\begin{array}{r} 4 \text{ h, } 50 \text{ min, } 15 \text{ s} \\ + \underline{21 \text{ h, } 05 \text{ min, } 40 \text{ s}} \\ 55 \text{ s} \end{array}$$

Step 2: Add the minutes to the minutes

$$50 \text{ min} + 05 \text{ min} = 55 \text{ min}$$

$$\begin{array}{r} 4 \text{ h, } 50 \text{ min, } 15 \text{ s} \\ + \underline{21 \text{ h, } 05 \text{ min, } 40 \text{ s}} \\ 55 \text{ min} \end{array}$$

Step 3: Add the hours to the hours

$$4 \text{ h} + 21 \text{ h} = 25 \text{ h}$$

$$\begin{array}{r} 4 \text{ h, } 50 \text{ min, } 15 \text{ s} \\ + \underline{21 \text{ h, } 05 \text{ min, } 40 \text{ s}} \\ 25 \text{ h} \end{array}$$

The sum of

$$\begin{array}{r} 4 \text{ h, } 50 \text{ min, } 15 \text{ s} \\ + \underline{21 \text{ h, } 05 \text{ min, } 40 \text{ s}} \\ \mathbf{25 \text{ h, } 55 \text{ min, } 55 \text{ s}} \end{array}$$

Exercise One

Add the times. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 3 \text{ h, } 20 \text{ min} \\ + 5 \text{ h, } 15 \text{ min} \\ \hline \end{array}$$

b)
$$\begin{array}{r} 11 \text{ h, } 05 \text{ min} \\ + 4 \text{ h, } 40 \text{ min} \\ \hline \end{array}$$

c)
$$\begin{array}{r} 9 \text{ h, } 50 \text{ min} \\ + 14 \text{ h, } 05 \text{ min} \\ \hline \end{array}$$

d)
$$\begin{array}{r} 2 \text{ h, } 10 \text{ min} \\ + 6 \text{ h, } 25 \text{ min} \\ \hline \end{array}$$

e)
$$\begin{array}{r} 7 \text{ h, } 35 \text{ min} \\ + 12 \text{ h, } 10 \text{ min} \\ \hline \end{array}$$

f)
$$\begin{array}{r} 10 \text{ h, } 30 \text{ min} \\ + 8 \text{ h, } 20 \text{ min} \\ \hline \end{array}$$

g)
$$\begin{array}{r} 1 \text{ h, } 55 \text{ min, } 15 \text{ s} \\ + 28 \text{ h, } 0 \text{ min, } 40 \text{ s} \\ \hline \end{array}$$

h)
$$\begin{array}{r} 4 \text{ h, } 45 \text{ min, } 05 \text{ s} \\ + 15 \text{ h, } 10 \text{ min, } 50 \text{ s} \\ \hline \end{array}$$

$$\begin{array}{r} \text{i) } 7 \text{ h, } 35 \text{ min, } 20 \text{ s} \\ + 6 \text{ h, } 15 \text{ min, } 30 \text{ s} \\ \hline \end{array}$$

$$\begin{array}{r} \text{j) } 3 \text{ h, } 25 \text{ min, } 45 \text{ s} \\ + 8 \text{ h, } 30 \text{ min, } 10 \text{ s} \\ \hline \end{array}$$

$$\begin{array}{r} \text{k) } 3 \text{ h, } 45 \text{ min, } 15 \text{ s} \\ + 12 \text{ h, } 05 \text{ min, } 35 \text{ s} \\ \hline \end{array}$$

$$\begin{array}{r} \text{l) } 4 \text{ h, } 50 \text{ min, } 30 \text{ s} \\ + 5 \text{ h, } 0 \text{ min, } 25 \text{ s} \\ \hline \end{array}$$

Answers to Exercise One

a) 8 h, 35 min

b) 15 h, 45 min

c) 23 h, 55 min

d) 8 h, 35 min

e) 19 h, 45 min

f) 18 h, 50 min

g) 29 h, 55 min, 55 s

h) 19 h, 55 min, 55 s

i) 13 h, 50 min, 50 s

j) 11 h, 55 min, 55 s

k) 15 h, 50 min, 50 s

l) 9 h, 50 min, 55 s

Exercise Two

Add the times. Check your work using the answer key at the end of the exercise.

a)
$$\begin{array}{r} 7 \text{ h, } 17 \text{ min} \\ + 6 \text{ h, } 28 \text{ min} \\ \hline \end{array}$$

b)
$$\begin{array}{r} 2 \text{ h, } 32 \text{ min} \\ + 8 \text{ h, } 11 \text{ min} \\ \hline \end{array}$$

c)
$$\begin{array}{r} 3 \text{ h, } 41 \text{ min} \\ + 9 \text{ h, } 08 \text{ min} \\ \hline \end{array}$$

d)
$$\begin{array}{r} 1 \text{ h, } 53 \text{ min} \\ + 11 \text{ h, } 05 \text{ min} \\ \hline \end{array}$$

e)
$$\begin{array}{r} 4 \text{ h, } 38 \text{ min} \\ + 5 \text{ h, } 20 \text{ min} \\ \hline \end{array}$$

f)
$$\begin{array}{r} 10 \text{ h, } 47 \text{ min} \\ + 12 \text{ h, } 02 \text{ min} \\ \hline \end{array}$$

g)
$$\begin{array}{r} 8 \text{ h, } 57 \text{ min, } 33 \text{ s} \\ + 9 \text{ h, } 01 \text{ min, } 18 \text{ s} \\ \hline \end{array}$$

h)
$$\begin{array}{r} 14 \text{ h, } 34 \text{ min, } 28 \text{ s} \\ + 22 \text{ h, } 22 \text{ min, } 19 \text{ s} \\ \hline \end{array}$$

$$\begin{array}{r} \text{i) } 9 \text{ h, } 14 \text{ min, } 46 \text{ s} \\ + 15 \text{ h, } 43 \text{ min, } 08 \text{ s} \\ \hline \end{array}$$

$$\begin{array}{r} \text{j) } 7 \text{ h, } 58 \text{ min, } 18 \text{ s} \\ + 11 \text{ h, } 01 \text{ min, } 32 \text{ s} \\ \hline \end{array}$$

$$\begin{array}{r} \text{k) } 16 \text{ h, } 24 \text{ min, } 52 \text{ s} \\ + 8 \text{ h, } 33 \text{ min, } 06 \text{ s} \\ \hline \end{array}$$

$$\begin{array}{r} \text{l) } 10 \text{ h, } 51 \text{ min, } 44 \text{ s} \\ + 4 \text{ h, } 04 \text{ min, } 12 \text{ s} \\ \hline \end{array}$$

Answers to Exercise Two

a) 13 h, 45 min

b) 10 h, 43 min

c) 12 h, 49 min

d) 12 h, 58 min

e) 9 h, 58 min

f) 22 h, 49 min

g) 17 h, 58 min, 51 s

h) 36 h, 56 min, 47 s

i) 24 h, 57 min, 54 s

j) 18 h, 59 min, 50 s

k) 24 h, 57 min, 58 s

l) 14 h, 55 min, 56 s

c) Ajani recorded 4 h, 51 min of music. The next day, Ajani recorded 3 h, 04 min more. How much music did he have in all?

d) Cristiano finished the race in 2 hr, 30 min, 43 s. Say finished the race in 3 h, 19 min, 12 s. What is the total of their times?

e) In May, Dorian used his cell phone for 18 h, 37 min, 20 s. In June, he used his cell phone for 17 h, 22 min, 18 s. How long did he use his cell phone for the two months?

Answers to Exercise Three

a) 17 h, 58 min

b) 21 h, 58 min

c) 7 h, 58 min

d) 5 h, 49 min, 55 s

e) 35 h, 59 min, 38 s

Subtracting Units of Time

We need to subtract units of time to find out how much time it took to do some job or to travel to some other place.

To subtract units of time, do this:

- Place the numbers to be subtracted in columns – minutes with minutes, hours with hours, seconds with seconds
- Subtract each column. Be sure to write the unit of time.

Example A: **2 h, 45 min**
 – 1 h, 05 min

Step 1: Subtract the minutes from the minutes

$$45 \text{ min} - 05 \text{ min} = 40 \text{ min}$$

$$\begin{array}{r} 2 \text{ h, } 45 \text{ min} \\ - 1 \text{ h, } 05 \text{ min} \\ \hline 40 \text{ min} \end{array}$$

Step 2: Subtract the hours from the hours

$$2 \text{ h} - 1 \text{ h} = 1 \text{ h}$$

$$\begin{array}{r} 2 \text{ h, } 45 \text{ min} \\ - 1 \text{ h, } 05 \text{ min} \\ \hline 1 \text{ h} \end{array}$$

The difference of **2 h, 45 min**
 – 1 h, 05 min
 1 h, 40 min

Example B: **5 h, 45 min, 10 s**
 - 2 h, 35 min, 05 s

Step 1: Subtract the seconds from the seconds.

$$10 \text{ s} - 05 \text{ s} = 05 \text{ s}$$

$$\begin{array}{r} 5 \text{ h, } 45 \text{ min, } 10 \text{ s} \\ - 2 \text{ h, } 35 \text{ min, } 05 \text{ s} \\ \hline \phantom{5 \text{ h, }} 10 \text{ min} \\ \phantom{5 \text{ h, } 10 \text{ min, }} 05 \text{ s} \end{array}$$

Step 2: Subtract the minutes from the minutes

$$45 \text{ min} - 35 \text{ min} = 10 \text{ min}$$

$$\begin{array}{r} 4 \text{ h, } 45 \text{ min, } 10 \text{ s} \\ - 2 \text{ h, } 35 \text{ min, } 05 \text{ s} \\ \hline \phantom{4 \text{ h, }} 10 \text{ min} \end{array}$$

Step 3: Subtract the hours from the hours

$$5 \text{ h} - 2 \text{ h} = 3 \text{ h}$$

$$\begin{array}{r} 5 \text{ h, } 45 \text{ min, } 10 \text{ s} \\ - 2 \text{ h, } 35 \text{ min, } 05 \text{ s} \\ \hline 3 \text{ h} \end{array}$$

The sum of

$$\begin{array}{r} 5 \text{ h, } 45 \text{ min, } 10 \text{ s} \\ - 2 \text{ h, } 35 \text{ min, } 05 \text{ s} \\ \hline \mathbf{3 \text{ h, } 10 \text{ min, } 05 \text{ s}} \end{array}$$

Exercise Four

Subtract the times. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a)} \quad 12 \text{ h, } 55 \text{ min} \\ - 3 \text{ h, } 25 \text{ min} \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 9 \text{ h, } 45 \text{ min} \\ - 6 \text{ h, } 10 \text{ min} \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 24 \text{ h, } 50 \text{ min} \\ - 8 \text{ h, } 35 \text{ min} \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 11 \text{ h, } 40 \text{ min} \\ - 4 \text{ h, } 15 \text{ min} \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 7 \text{ h, } 30 \text{ min} \\ - 5 \text{ h, } 05 \text{ min} \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 12 \text{ h, } 20 \text{ min} \\ - 10 \text{ h, } 05 \text{ min} \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 16 \text{ h, } 45 \text{ min, } 55 \text{ s} \\ - 9 \text{ h, } 25 \text{ min, } 15 \text{ s} \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 17 \text{ h, } 50 \text{ min, } 35 \text{ s} \\ - 8 \text{ h, } 15 \text{ min, } 20 \text{ s} \\ \hline \end{array}$$

$$\begin{array}{r} \text{i) } 13 \text{ h, } 55 \text{ min, } 40 \text{ s} \\ - 5 \text{ h, } 30 \text{ min, } 10 \text{ s} \\ \hline \end{array}$$

$$\begin{array}{r} \text{j) } 15 \text{ h, } 40 \text{ min, } 50 \text{ s} \\ - 6 \text{ h, } 20 \text{ min, } 25 \text{ s} \\ \hline \end{array}$$

$$\begin{array}{r} \text{k) } 14 \text{ h, } 50 \text{ min, } 40 \text{ s} \\ - 7 \text{ h, } 35 \text{ min, } 05 \text{ s} \\ \hline \end{array}$$

$$\begin{array}{r} \text{l) } 28 \text{ h, } 50 \text{ min, } 30 \text{ s} \\ - 9 \text{ h, } 35 \text{ min, } 0 \text{ s} \\ \hline \end{array}$$

Answers to Exercise Four

a) 9 h, 30 min

b) 3 h, 35 min

c) 16 h, 15 min

d) 7 h, 25 min

e) 2 h, 25 min

f) 2 h, 15 min

g) 7 h, 20 min, 40 s

h) 9 h, 35 min, 15 s

i) 8 h, 25 min, 30 s

j) 9 h, 20 min, 25 s

k) 7 h, 15 min, 35 s

l) 19 h, 15 min, 30 s

Exercise Five

Subtract the times. Check your work using the answer key at the end of the exercise.

$$\begin{array}{r} \text{a) } 13 \text{ h, } 48 \text{ min} \\ - 5 \text{ h, } 19 \text{ min} \\ \hline \end{array}$$

$$\begin{array}{r} \text{b) } 16 \text{ h, } 57 \text{ min} \\ - 9 \text{ h, } 22 \text{ min} \\ \hline \end{array}$$

c)
$$\begin{array}{r} 15 \text{ h, } 38 \text{ min} \\ - 5 \text{ h, } 05 \text{ min} \\ \hline \end{array}$$

d)
$$\begin{array}{r} 19 \text{ h, } 26 \text{ min} \\ - 3 \text{ h, } 17 \text{ min} \\ \hline \end{array}$$

e)
$$\begin{array}{r} 22 \text{ h, } 43 \text{ min} \\ - 16 \text{ h, } 06 \text{ min} \\ \hline \end{array}$$

f)
$$\begin{array}{r} 24 \text{ h, } 52 \text{ min} \\ - 8 \text{ h, } 24 \text{ min} \\ \hline \end{array}$$

g)
$$\begin{array}{r} 14 \text{ h, } 53 \text{ min, } 34 \text{ s} \\ - 9 \text{ h, } 14 \text{ min, } 21 \text{ s} \\ \hline \end{array}$$

h)
$$\begin{array}{r} 28 \text{ h, } 46 \text{ min, } 59 \text{ s} \\ - 10 \text{ h, } 38 \text{ min, } 18 \text{ s} \\ \hline \end{array}$$

i)
$$\begin{array}{r} 17 \text{ h, } 32 \text{ min, } 47 \text{ s} \\ - 8 \text{ h, } 08 \text{ min, } 23 \text{ s} \\ \hline \end{array}$$

j)
$$\begin{array}{r} 25 \text{ h, } 51 \text{ min, } 57 \text{ s} \\ - 17 \text{ h, } 27 \text{ min, } 19 \text{ s} \\ \hline \end{array}$$

k)
$$\begin{array}{r} 16 \text{ h, } 43 \text{ min, } 32 \text{ s} \\ - 7 \text{ h, } 16 \text{ min, } 09 \text{ s} \\ \hline \end{array}$$

l)
$$\begin{array}{r} 24 \text{ h, } 38 \text{ min, } 48 \text{ s} \\ - 5 \text{ h, } 12 \text{ min, } 07 \text{ s} \\ \hline \end{array}$$

Answers to Exercise Five

- | | | |
|----------------------|-----------------------|-----------------------|
| a) 8 h, 29 min | b) 7 h, 35 min | c) 10 h, 33 min |
| d) 16 h, 09 min | e) 6 h, 37 min | f) 16 h, 28 min |
| g) 5 h, 39 min, 13 s | h) 18 h, 08 min, 41 s | i) 9 h, 24 min, 24 s |
| j) 8 h, 24 min, 38 s | k) 9 h, 27 min, 23 s | l) 19 h, 26 min, 41 s |

Exercise Six

Rewrite each question in columns. Be careful to write seconds under seconds, minutes under minutes and hours under hours. Check your work using the answer key at the end of the exercise.

- a) Milan works 45 h, 30 min each week. He has worked 32 h, 15 min this week. How much more time can he work?
- b) The trip from Vancouver to Calgary takes 17 h, 40 min on the bus. The trip from Vancouver to Kamloops takes 5 h, 05 min. How much longer must you travel to get to Calgary?

- c) The flight from Vancouver to Toronto leaves at 12 h, 30 min. The flight arrives in Toronto at 15 h, 53 min. How long is the flight from Vancouver to Toronto?
- d) Over two months, Lola has used her cell phone for 43 h, 37 min, 58 s. In June, she used her cell phone for 21 h, 22 min, 25 s. How much time has she used her cell phone this month?
- e) During the Vancouver Marathon, the first runner crossed the finish line in 2 h, 16 min, 55 s. Another runner crossed the finish line in 4 hr, 26 min, 56 s. What is the difference in their times?

Answers to Exercise Six

a) 13 h, 15 min

b) 12 h, 35 min

c) 3 h, 23 min

d) 22 h, 15 min, 33 s

e) 2 h, 10 min, 01 s

Topic D: Self-Test

Mark /24 Aim 19/24

A. Find the sums.

4 marks

a)
$$\begin{array}{r} 12 \text{ h, } 15 \text{ min} \\ + 4 \text{ h, } 35 \text{ min} \\ \hline \end{array}$$

b)
$$\begin{array}{r} 7 \text{ h, } 50 \text{ min} \\ + 10 \text{ h, } 05 \text{ min} \\ \hline \end{array}$$

c)
$$\begin{array}{r} 11 \text{ h, } 40 \text{ min} \\ + 2 \text{ h, } 10 \text{ min} \\ \hline \end{array}$$

d)
$$\begin{array}{r} 1 \text{ h, } 25 \text{ min} \\ + 15 \text{ h, } 20 \text{ min} \\ \hline \end{array}$$

B. Find the sums.

4 marks

a)
$$\begin{array}{r} 9 \text{ h, } 42 \text{ min} \\ + 3 \text{ h, } 16 \text{ min} \\ \hline \end{array}$$

b)
$$\begin{array}{r} 5 \text{ h, } 53 \text{ min} \\ + 8 \text{ h, } 02 \text{ min} \\ \hline \end{array}$$

c)
$$\begin{array}{r} 6 \text{ h, } 38 \text{ min} \\ + 3 \text{ h, } 21 \text{ min} \\ \hline \end{array}$$

d)
$$\begin{array}{r} 22 \text{ h, } 33 \text{ min} \\ + 14 \text{ h, } 16 \text{ min} \\ \hline \end{array}$$

C. Rewrite each question in columns and find the sums.

4 marks

a) Ingrid walked the dogs for 3 h, 15 min on Monday. On Tuesday, she walked the dogs for 2 h, 40 min. Find the total time that Ingrid walked the dogs.

b) Bianca rode the bus to college for 2 h, 36 min on Wednesday. On Thursdays, the same trip took 3 h, 21 min. How long was she on the bus altogether?

D. Find the differences.

4 marks

a)
$$\begin{array}{r} 12 \text{ h, } 55 \text{ min} \\ - 4 \text{ h, } 35 \text{ min} \\ \hline \end{array}$$

b)
$$\begin{array}{r} 9 \text{ h, } 45 \text{ min} \\ - 3 \text{ h, } 30 \text{ min} \\ \hline \end{array}$$

c)
$$\begin{array}{r} 11 \text{ h, } 50 \text{ min} \\ - 7 \text{ h, } 15 \text{ min} \\ \hline \end{array}$$

d)
$$\begin{array}{r} 40 \text{ h, } 40 \text{ min} \\ - 15 \text{ h, } 05 \text{ min} \\ \hline \end{array}$$

E. Find the differences.

4 marks

a)
$$\begin{array}{r} 8 \text{ h, } 58 \text{ min} \\ - 6 \text{ h, } 34 \text{ min} \\ \hline \end{array}$$

b)
$$\begin{array}{r} 14 \text{ h, } 47 \text{ min} \\ - 5 \text{ h, } 29 \text{ min} \\ \hline \end{array}$$

c)
$$\begin{array}{r} 11 \text{ h, } 36 \text{ min} \\ - 2 \text{ h, } 18 \text{ min} \\ \hline \end{array}$$

d)
$$\begin{array}{r} 18 \text{ h, } 41 \text{ min} \\ - 9 \text{ h, } 26 \text{ min} \\ \hline \end{array}$$

F. Rewrite each question in columns and find the sums.

4 marks

- a) During rush hour, it took Marco 2 h, 51 min to drive home. During non-rush hour, it took Marco 1 h, 48 min to drive home. Find the difference.

- b) Kade and Amia left from the Kelowna at the same time. Kade took 5 h, 37 min to drive home. Amia took 4 h, 29 min to drive home. Find the difference.

Answers to Topic D Self-Test

A.

- a) 16 h, 50 min b) 17 h, 55 min c) 13 h, 50 min d) 16 h, 45 min

B.

- a) 12 h, 58 min b) 13 h, 55 min c) 9 h, 59 min d) 36 h, 49 min

C.

- a) 5 h, 55 min b) 5 h, 57 min

D.

- a) 8 h, 20 min b) 6 h, 15 min c) 4 h, 35 min d) 25 h, 35 min

E.

- a) 2 h, 24 min b) 9 h, 18 min c) 9 h, 18 min d) 9 h, 15 min

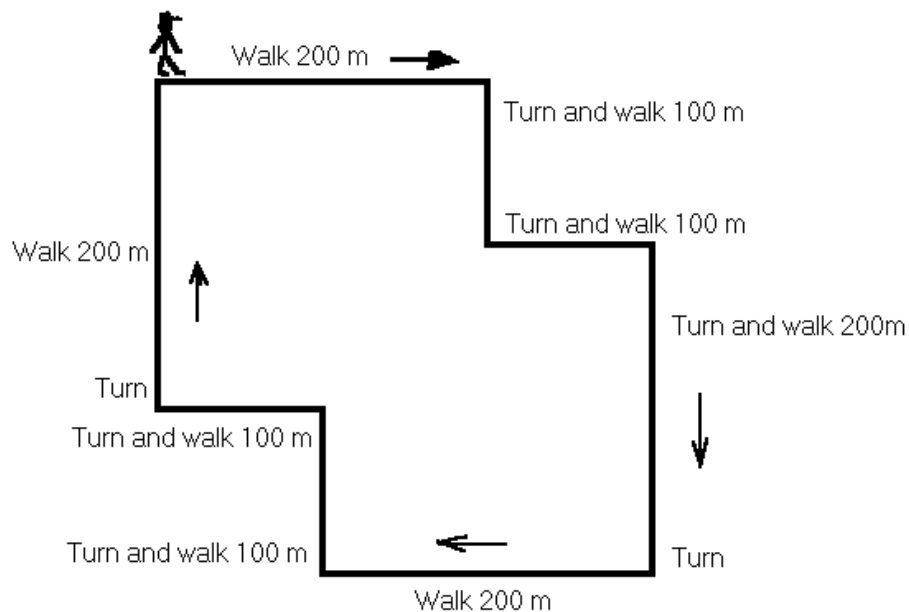
F.

- a) 1 h, 03 min b) 1 h, 08 min

Topic E: Perimeter

Perimeter is from the Greek language. **Peri** means "around". Perimeter is the distance **around** something. If you walked around the outside of your building, you would have walked close to the perimeter of the building. (The actual perimeter would be the outside wall which is a little tricky to walk on!) A fence around a field is *at the perimeter* of the field. In this sense, we are using perimeter to mean "the outside edge". The length of the entire fence is the measure of the perimeter.

Example A: Picture yourself going for a walk, starting at the door of your building.

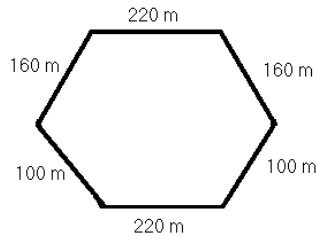


Your walk was in the shape of an octagon. How far did you walk?

When you add together all the distances, you get 1 200 m.

You have just found the perimeter of an octagon.

Example B: The new memorial park was built in an interesting shape. The park is a hexagon. A walking path goes around the perimeter of the park. How long is the path?



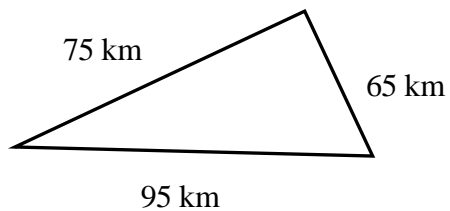
Add the measure of each side of the park. The perimeter of this hexagon is 960 m.

To find the perimeter of a polygon, add the lengths of all the sides together.

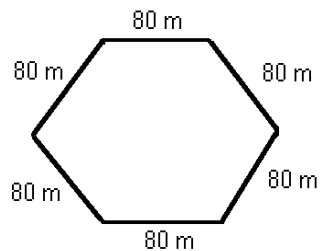
Exercise One

Find the perimeter of each figure. Be sure to include the units of measure in your answer. Check your work using the answer key at the end of the exercise.

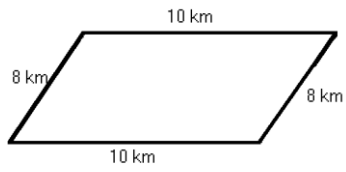
a)



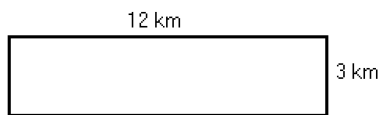
b)



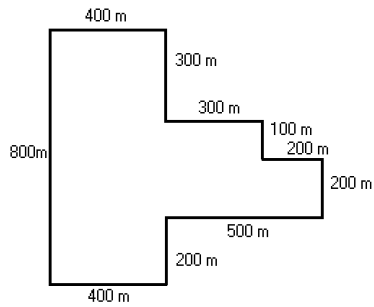
c)



d)

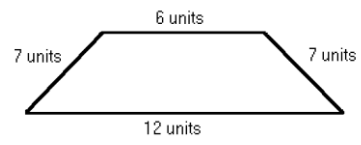


e)

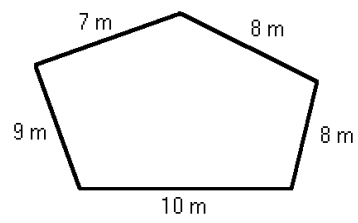


Remember that the opposite sides of a rectangle are congruent (have the same measure) and all four sides of a square are congruent.

f)



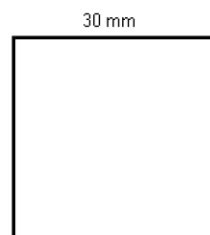
g)



h)



i)



Answers to Exercise One

a) 235 metres

b) 480 metres

c) 36 kilometres

d) 30 kilometres

e) 3 400 kilometres

f) 32 units

g) 42 metres

h) 18 kilometres

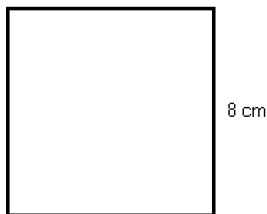
i) 120 millimetres

Finding the Perimeter of a Square

Write the definition of a square.

By definition then, a square has four sides that are all congruent (have the same measure).

To find the perimeter you can add the four sides.



$$\begin{aligned} \text{Perimeter} &= \\ 8 \text{ cm} + 8 \text{ cm} + 8 \text{ cm} + 8 \text{ cm} &= 32 \text{ cm} \end{aligned}$$

Exercise Two

Find the perimeter of the **squares** described in each question. The measure of one side has been given. Be sure to include the units of measure in your answer. Check your work using the answer key at the end of the exercise.

a) $s = 75 \text{ m}$
 $P = 75 \text{ m} + 75 \text{ m} + 75 \text{ m} + 75 \text{ m}$
 $P = \underline{\hspace{2cm}}$

b) $s = 12 \text{ mm}$
 $P = \underline{\hspace{2cm}}$

c) $s = 100 \text{ km}$
 $P = \underline{\hspace{2cm}}$

d) $s = 50 \text{ cm}$
 $P = \underline{\hspace{2cm}}$

e) $s = 130 \text{ m}$
 $P = \underline{\hspace{2cm}}$

f) $s = 1\,000 \text{ km}$
 $P =$

g) $s = 165 \text{ m}$
 $P = \underline{\hspace{2cm}}$

h) $s = 325 \text{ m}$
 $P =$

i) $s = 68 \text{ cm}$
 $P = \underline{\hspace{2cm}}$

j) $s = 85 \text{ mm}$
 $P =$

Answers to Exercise Two

a) 300 metres

b) 48 millimetres

c) 400 kilometres

d) 200 centimetres

e) 520 metres

f) 4 000 kilometres

g) 660 metres

h) 1300 metres

i) 272 centimetres

j) 340 millimetres

Problems using the Perimeters of Squares

Example A: Ted needs to build a fence around his swimming pool. The swimming pool with its deck is a square shape that measures 35 m per side. How much fencing must Ted buy?

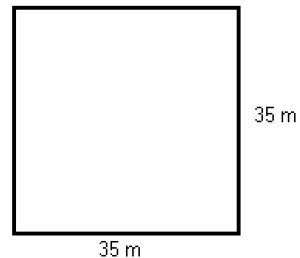
Step 1: Question.

How much fencing must Ted buy?

Step 2: Find the needed information—drawing a sketch is often helpful.

- fence around a square pool

$$s = 35 \text{ m}$$



Step 3: Operations

The fence is a perimeter, so find the perimeter of a square.

$$P = 35 \text{ m} + 35 \text{ m} + 35 \text{ m} + 35 \text{ m}$$

$$P = 140 \text{ m of fence}$$

Ted must buy 140 m of fencing.

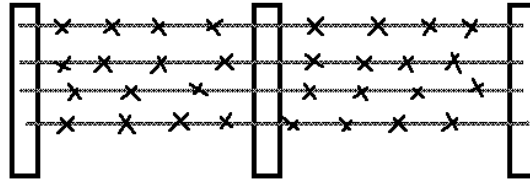
Exercise Three

Solve these problems using perimeters of squares. The problems may need two operations. Be sure to include the units of measure in your answer. Check your work using the answer key at the end of the exercise.

- a) The campground security officer walks around the outside of the campground four times every evening. The campground is 800 m square. How far does the officer walk in these patrols each night?
Note: *800 m square* is a common way of saying "a square with sides that measure 800 m."
- b) Lee is going to install base boards in the recreation room he has built in his basement. The room is five metres square. The baseboard material is expensive, so he will be sure to deduct 1 m for each of the two doorways. How much baseboard material does he need to buy?

- c) Phil is going to fence his large 50 m square vegetable garden to keep the deer out. The fence will be made with four strands of barbed wire. How much barbed wire should Phil buy?

The fence will look like this:



Answers to Exercise Three

a) 12 800 metres

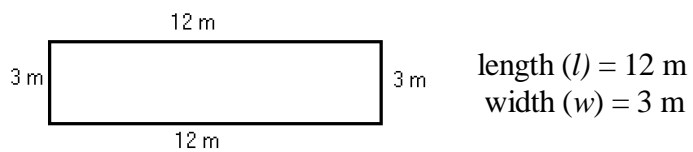
b) 18 metres

c) 800 metres

Finding the Perimeter of a Rectangle

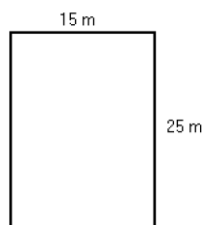
Write the definition of a rectangle.

Example A:



To find the perimeter you can find the sum of
 $12\text{ m} + 3\text{ m} + 12\text{ m} + 3\text{ m} = 30\text{ m}$

Example B: Find the perimeter of a rectangle 25 m long and 15 m wide.



$$\begin{aligned} P &= 15\text{ m} + 25\text{ m} + 15\text{ m} + 25\text{ m} \\ &= 80\text{ m} \end{aligned}$$

Exercise Four

Find the perimeter of the **rectangles** described below. Draw and label a sketch for each. Be sure to include the units of measure in your answer. Check your work using the answer key at the end of the exercise.

a) $l = 10 \text{ cm}$
 $w = 6 \text{ cm}$
 $P = \underline{\hspace{2cm}}$

b) $l = 100 \text{ km}$
 $w = 70 \text{ km}$
 $P = \underline{\hspace{2cm}}$

c) $l = 15 \text{ mm}$
 $w = 10 \text{ mm}$
 $P = \underline{\hspace{2cm}}$

d) $l = 97 \text{ cm}$
 $w = 35 \text{ cm}$
 $P = \underline{\hspace{2cm}}$

e) $l = 400 \text{ km}$
 $w = 100 \text{ km}$
 $P = \underline{\hspace{2cm}}$

f) $l = 42 \text{ m}$
 $w = 67 \text{ m}$
 $P = \underline{\hspace{2cm}}$

g) $l = 132 \text{ m}$
 $w = 76 \text{ m}$
 $P = \underline{\hspace{2cm}}$

h) $l = 196 \text{ cm}$
 $w = 28 \text{ cm}$
 $P = \underline{\hspace{2cm}}$

Answers to Exercise Four

a) 32 centimetres

b) 340 kilometres

c) 50 millimetres

d) 264 centimetres

e) 1 000 kilometres

f) 218 metres

g) 416 metres

h) 448 centimetres

Problems using Perimeters of Rectangles

Exercise Five

Solve these problems. Draw and label a sketch for each. Be sure to include the units of measure in your answer. Check your work using the answer key at the end of the exercise.

- a) Janice plans to sew lace on the edge of a tablecloth that is 132 cm in width and 218 cm long. How much lace does she need?

- b) One physical education teacher starts each class by having everyone jog around the school 4 times. The school is rectangular (shaped like a rectangle) and 160 m long and 95 m wide. About how far do the students jog each class?

Note: *160 m long and 95 m wide* may be written as "160 m by 95 m".

- a) How many metres of baseboard are needed for a rectangular room 4 m by 3 m?
Deduct 1 m for each of the two doorways.

- b) Dennis likes to cycle 30 km daily around a cycle path at a local park. The park is rectangular and measures 3 km in width and 5 km in length. How far does Dennis cycle if he rides around the park four times?

- a) Calculate the total amount of weather-stripping needed to go around these windows in a house.

3 windows each measuring 76 cm by 122 cm

2 windows each measuring 152 cm by 135 cm

- b) The Nuoris are going to replace the fascia board (the trim at the edge of a roof) with new pressure-treated cedar board. Their flat roof is 14 m by 12 m. How much fascia board is needed?

Answers to Exercise Five

a) 700 centimetres

b) 2 040 metres

c) 12 metres

d) 32 kilometres

e) 2 336 centimetres

f) 56 metres

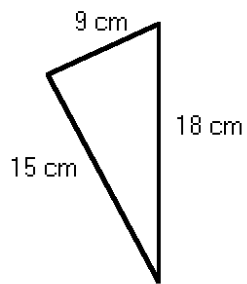
Topic E: Self-Test

Mark /6 Aim 5/6

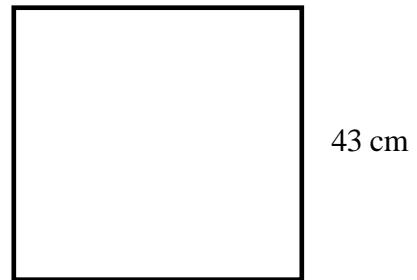
A. Find the perimeter of each shape.

4 marks

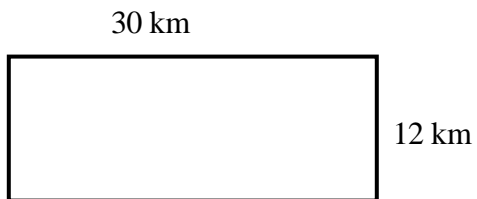
a)



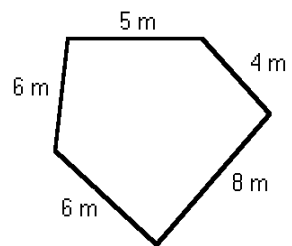
b)



c)



d)



B. Word Problems. Draw and label a sketch for each. Be sure to include the units of measure in your answer. 2 marks

a) How much chrome edging will Juanita need for a kitchen table 121 cm square?

b) Than is going to frame a fabulous poster that is 100 cm by 70 cm. How much framing material should he buy?

Answers to Topic E Self-Test

A.

a) 42 centimetres b) 172 centimetres c) 84 kilometres d) 29 metres

B.

a) 484 centimetres b) 340 centimetres

Unit 5 Review – Making Change and Time

You will now practice all the skills you learned in Unit 4. Check your work using the answer key at the end of the review.

A. Circle the number of coins you would need to get from the first number to the second number. Make sure to use the least number of coins you can.

a) 37¢ to 40¢



b) 85¢ to 90¢



c) 60¢ to 70¢



d) 25¢ to 50¢



B. State the number and kind of coins you would need to get from the first number to the second number. Make sure you use the least number of coins as possible.

a) 58¢ to 60¢

b) 95¢ to \$1.00

c) 15¢ to 25¢

d) 75¢ to \$1.00

C. State the number and kind of coins you would need to get from the first number to the second number. Make sure you use the least number of coins as possible.

a) 18¢ to 25¢

b) 67¢ to 75¢

c) 35¢ to 75¢

d) 29¢ to 50¢

D. State the number and kind of coins you would need to get change from \$1.00. Make sure you use the least number of coins as possible.

a) 40¢

b) 56¢

c) 19¢

d) 83¢

e) 33¢

f) 65¢

g) 2 apples cost 76¢

h) a pen costs 92¢

i) a doughnut costs 73¢

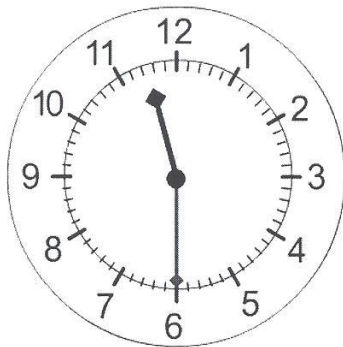
j) a ruler costs 29¢

k) Mrs. Low bought 3 lemons for 89¢ . How much change will she get back from $\$1.00$?

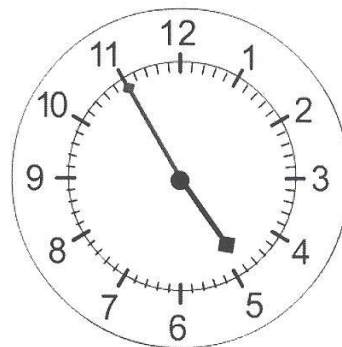
l) Mr. Garcia bought a can of peaches for 67¢ . How much change will he get back from $\$1.00$?

E. Write the time shown on each clock.

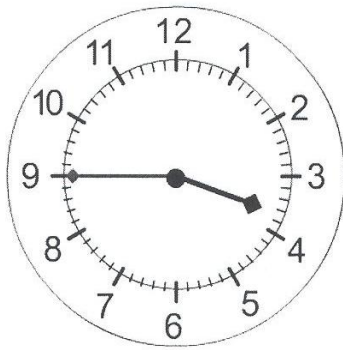
a)



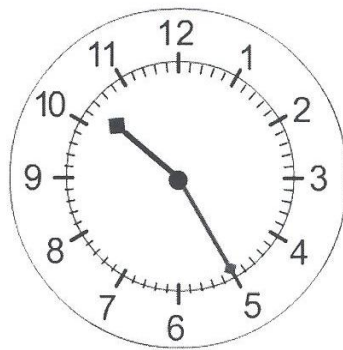
b)



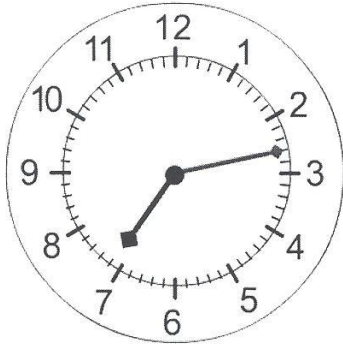
c)



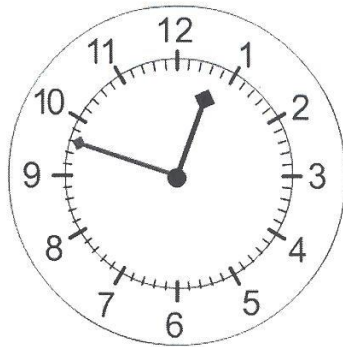
d)



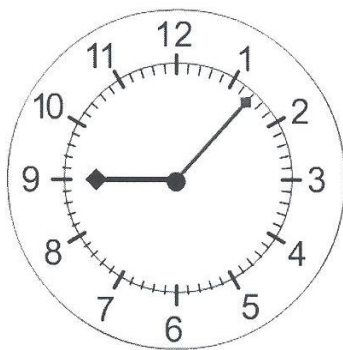
e)



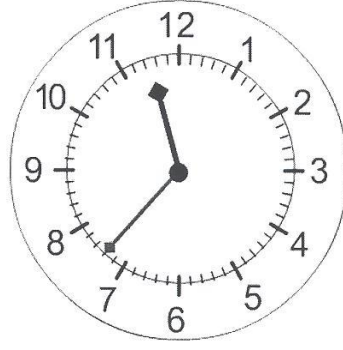
f)



g)

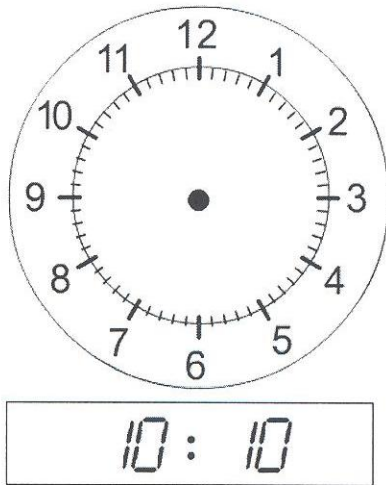


h)

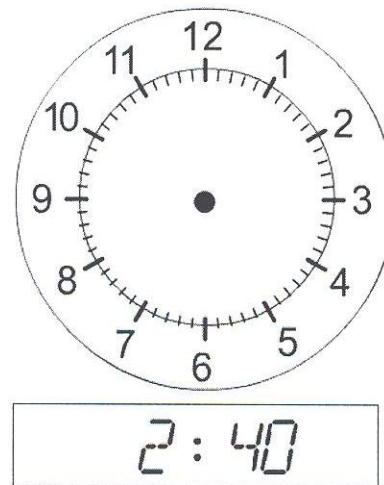


F. Under each clock is a time on a digital clock. Put the hands on the analog clock to show the digital time.

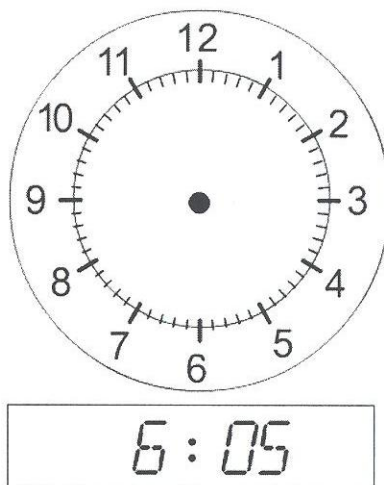
a)



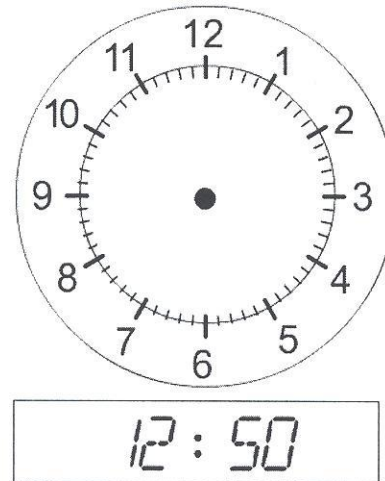
b)



c)



d)



G. Change each 12-hour clock time to 24-hour clock time. Watch carefully for a.m. and p.m. Remember: only times between 1:00 p.m. and 11:59 p.m. need to be changed.

a) 6:48 a.m.

b) 9:56 p.m.

c) 7:45 p.m.

d) 5:30 a.m.

e) 11:17 p.m.

f) 10:08 a.m.

H. Change each 12-hour clock time to 24-hour clock time. Watch carefully for a.m. and p.m. Remember: only times between 1:00 p.m. and 11:59 p.m. need to be changed.

a) 2115

b) 0718

c) 1326

d) 1142

e) 1830

f) 0145

I. Add the times.

a)
$$\begin{array}{r} 6 \text{ h, } 40 \text{ min} \\ + 3 \text{ h, } 10 \text{ min} \\ \hline \end{array}$$

b)
$$\begin{array}{r} 4 \text{ h, } 20 \text{ min} \\ + 8 \text{ h, } 15 \text{ min} \\ \hline \end{array}$$

c)
$$\begin{array}{r} 8 \text{ h, } 42 \text{ min} \\ + 6 \text{ h, } 15 \text{ min} \\ \hline \end{array}$$

d)
$$\begin{array}{r} 7 \text{ h, } 36 \text{ min} \\ + 9 \text{ h, } 22 \text{ min} \\ \hline \end{array}$$

e)
$$\begin{array}{r} 4 \text{ h, } 15 \text{ min} \\ + 7 \text{ h, } 29 \text{ min} \\ \hline \end{array}$$

f)
$$\begin{array}{r} 5 \text{ h, } 36 \text{ min} \\ + 9 \text{ h, } 17 \text{ min} \\ \hline \end{array}$$

g)
$$\begin{array}{r} 2 \text{ h, } 43 \text{ min, } 35 \text{ s} \\ + 5 \text{ h, } 11 \text{ min, } 22 \text{ s} \\ \hline \end{array}$$

h)
$$\begin{array}{r} 6 \text{ h, } 24 \text{ min, } 43 \text{ s} \\ + 9 \text{ h, } 28 \text{ min, } 08 \text{ s} \\ \hline \end{array}$$

i) The first soccer game took 2 h, 32 min to complete. The second soccer game took 3 h, 19 min. How long did both games take?

j) The first cross-country skier completed the race in 2 h, 05 min, 37 s. The second skier completed the race in 2 h, 06 min, 18 s. What is the total time?

J. Subtract the times.

g)
$$\begin{array}{r} 6 \text{ h, } 45 \text{ min} \\ - 3 \text{ h, } 20 \text{ min} \\ \hline \end{array}$$

b)
$$\begin{array}{r} 8 \text{ h, } 50 \text{ min} \\ - 4 \text{ h, } 15 \text{ min} \\ \hline \end{array}$$

c)
$$\begin{array}{r} 16 \text{ h, } 58 \text{ min} \\ - 7 \text{ h, } 27 \text{ min} \\ \hline \end{array}$$

d)
$$\begin{array}{r} 11 \text{ h, } 47 \text{ min} \\ - 2 \text{ h, } 13 \text{ min} \\ \hline \end{array}$$

e)
$$\begin{array}{r} 17 \text{ h, } 42 \text{ min} \\ - 9 \text{ h, } 18 \text{ min} \\ \hline \end{array}$$

f)
$$\begin{array}{r} 13 \text{ h, } 51 \text{ min} \\ - 8 \text{ h, } 37 \text{ min} \\ \hline \end{array}$$

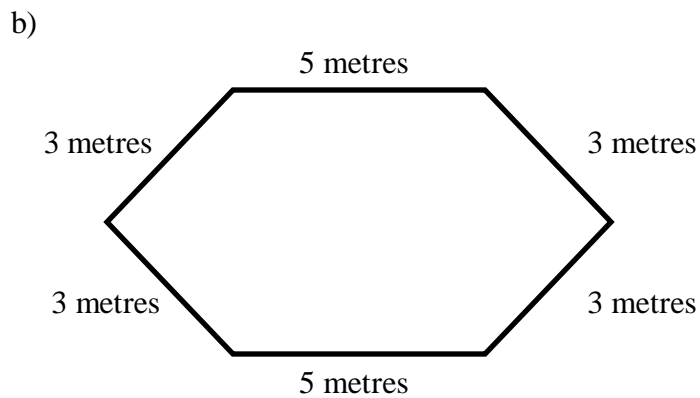
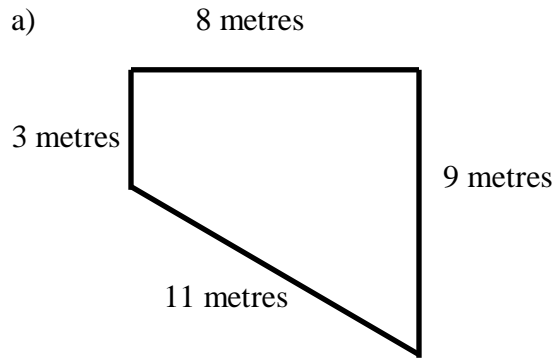
g)
$$\begin{array}{r} 14 \text{ h, } 32 \text{ min, } 41 \text{ s} \\ - 5 \text{ h, } 26 \text{ min, } 39 \text{ s} \\ \hline \end{array}$$

h)
$$\begin{array}{r} 18 \text{ h, } 47 \text{ min, } 36 \text{ s} \\ - 9 \text{ h, } 19 \text{ min, } 19 \text{ s} \\ \hline \end{array}$$

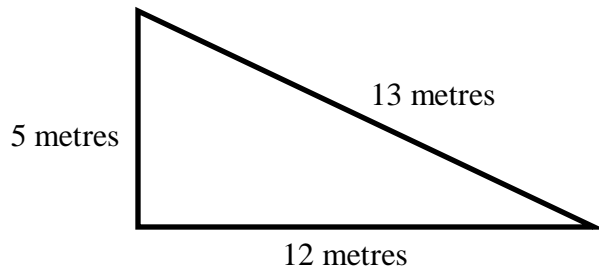
- i) The first cross country skier finished the race in 1 h, 34 min, 04 s. The next cross country skier finished the race in 1 h, 42 min, 33 s. What is the difference in their times?

- j) It takes 2 h, 20 min to travel from London to Paris on the train. It takes 8 h, 55 min to travel from London to Paris by both ferry and train. How much longer does it take by ferry and train?

K. Find the perimeter of the shape. Be sure to put the unit of measure in your answer.



c)



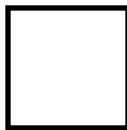
L. Find the perimeter of each square. Be sure to include the unit of measure in your answer.

a)

6 kilometres



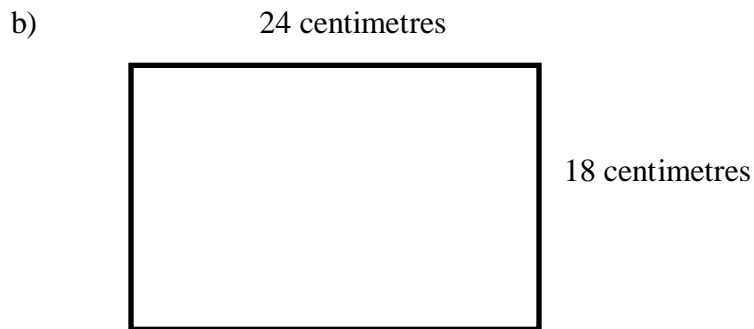
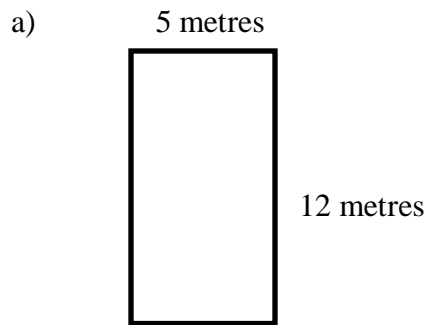
b)



13 centimetres

c) Chung is putting new fencing around his square swimming pool. The length of side is 30 metres. How much fencing will Chung need?

M. Find the perimeter of each rectangle. Be sure to include the unit of measure in your answer.



- c) Say Han is decorating a rectangular birthday that measures 61 centimetres by 31 centimetres. He wants to put an icing decoration around the cake. What is the perimeter of the cake?

Answers to Unit 5 Review

A.

- a) 3 pennies b) 1 nickel c) 1 dime d) 1 quarter

B.

- a) 2 pennies b) 1 nickel c) 1 dime d) 1 quarter

C.

- a) 2 pennies, 1 nickel b) 3 pennies, 1 nickel c) 1 nickel, 1 dime, 1 quarter
d) 1 penny, 2 dimes

D.

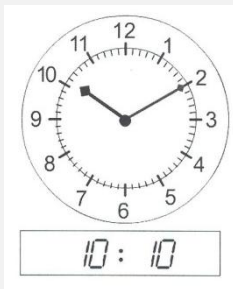
- a) 1 dime, 2 quarters b) 4 pennies, 1 nickel, 1 dime, 1 quarter
c) 1 penny, 1 nickel, 3 quarters d) 2 pennies, 1 nickel, 1 dime
e) 2 pennies, 1 nickel, 1 dime, 2 quarters f) 1 dime, 1 quarter
g) 4 pennies, 2 dimes h) 3 pennies, 1 nickel
i) 2 pennies, 1 quarter j) 1 penny, 2 dimes, 2 quarters
k) 1 penny, 1 dime l) 3 pennies, 1 nickel, 1 quarter

E.

- a) 11:30 b) 4:55 c) 3:45 d) 10:25 e) 7:13
f) 12:48 g) 9:12 h) 11:37

F.

a)



b)



c)



d)



G.

- a) 0648 b) 2156 c) 1945 d) 0530
e) 2317 f) 1008

H.

- a) 9:15 p.m. b) 7:18 a.m. c) 1:26 p.m. d) 11:42 a.m.
e) 6:30 p.m. f) 1:45 a.m.

I.

- a) 9 h, 50 min b) 12 h, 35 min c) 14 h, 57 min d) 16 h, 58 min
e) 11 h, 44 min f) 14 h, 53 min g) 7 h, 54 min, 57 s h) 15 h, 52 min, 51 s
i) 5 h, 51 min j) 4 h, 11 min, 55 s

J.

- a) 3 h, 25 min b) 4 h, 35 min c) 9 h, 31 min d) 9 h, 34 min
e) 8 h, 24 min f) 5 h, 14 min g) 9 h, 06 min, 02 s
h) 9 h, 28 min, 17 s i) 8 min, 29 s j) 6 h, 35 min

K.

- a) 31 metres b) 22 metres c) 30 metres

L.

- a) 24 kilometres b) 52 centimetres c) 120 metres

M.

- a) 34 metres b) 84 centimetres c) 184 centimetres

CONGRATULATIONS!!

Now you have finished Unit 5.

TEST TIME!

Ask your instructor for the Practice Test for this unit.

Once you've done the practice test,
you need to do the unit 4 test.

Again, ask your instructor for this.

Good luck!

Book 2 Review

You will now practice all the skills you learned in Book 2. Check your work using the answer key at the end of the review.

If you can't remember how to do a question, go back to the lesson on this topic to refresh your memory. The unit and topic for where each question came from is listed next to the question.

Example: **1-B** means Unit 1, Topic B

1-B

A. Write the place value names (ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions) for each underlined digit.

a) 1 230 _____ b) 234 965 _____

c) 6 245 903 _____ d) 62 198 _____

B. Using the number below, write the digit that is in each of the following place values.

452 781 039

a) tens _____ b) ten thousands _____

c) hundred thousands _____ d) millions _____

C. Underline the digit for the place value named.

a) thousands 182 374 b) hundreds 1 051

c) hundred thousands 3 142 650 d) thousands 21 087

D. Write the word names for the numbers.

a) 63 374 _____

b) 7 248 _____

E. Write numerals for these word names.

a) three million, two hundred fourteen thousand, five hundred sixty-seven

b) fifty-one thousand, two hundred two _____

1-C

F. Write each number in expanded form.

a) 3 479 _____

b) 21 016 _____

G. Write each number from expanded form.

i. $4\,000\,000 + 100\,000 + 10\,000 + 3\,000 + 200 + 40 + 8 =$ _____

ii. $100\,000 + 80\,000 + 2\,000 + 300 + 4 =$ _____

1-D

H. Arrange these numbers in order from smallest to largest.

a) 312 23 2 154 2 514 633 43 5 412

b) 45 554 544 5 454 5 544 55 454 445

I. Write $<$, $>$ or $=$ in each blank as needed.

a) 76 125 _____ 71 625 b) 4 325 _____ 3 425

c) 14 527 _____ 14 752 d) 65 234 _____ 65 234

1-E**J. Round each number to the nearest 100.**

a) 672 _____

b) 3 473 _____

K. Round each number to the nearest 1 000.

a) 41 370 _____

b) 64 921 _____

L. Round each number to the nearest 10 000.

a) 76 125 _____

b) 582 412 _____

M. Round each number to the nearest 100 000.

a) 351 257 _____

b) 8 675 247 _____

N. Round each number to the nearest 1 000 000.

a) 7 351 257 _____

b) 4 165 268 _____

O. Word Problems.

- i. The Bering Sea is 1 547 metres deep. The Caribbean Sea is 2 647 metres deep. The Indian Ocean is 3 963 metres deep. The Pacific Ocean is 4 028 metres deep. Round each number to the nearest 100.

Sea	Number	Rounded Number
Bering Sea		
Caribbean Sea		
Indian Ocean		
Pacific Ocean		

- b) The Yellow Sea has an area of 293 960 square metres. The Red Sea has an area of 452 990 square metres. The Black Sea has an area of 507 900 square metres. Round each number to the nearest 100 000.

Sea	Number	Rounded Number
Yellow Sea		
Red Sea		
Black Sea		

2-A

P. Find the sums.

$$\begin{array}{r} \text{a) } 53 \\ + 24 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b) } 60 \\ + 19 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c) } 74 \\ + 22 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d) } 21 \\ 45 \\ + 32 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e) } 41 \\ 33 \\ + 24 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f) } 50 \\ 31 \\ + 28 \\ \hline \end{array}$$

Q. Find the sums.

$$\begin{array}{r} \text{a) } 362 \\ 114 \\ + 523 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b) } 425 \\ 241 \\ + 312 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c) } 421 \\ 146 \\ + 332 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d) } 4\,723 \\ + 4\,165 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e) } 8\,102 \\ + 2\,562 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f) } 9\,415 \\ + 3\,521 \\ \hline \end{array}$$

R. Find the sums.

a) $65 + 423 =$

b) $238 + 5\,421 =$

c) $43 + 732 + 124 =$

d) $8\,216 + 7\,343 =$

e) $75\,236 + 30\,533 =$

f) $543 + 2\,140 + 67\,205 =$

2-B

S. Find the sums.

a)
$$\begin{array}{r} 47 \\ + 87 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 87 \\ + 59 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 26 \\ + 98 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 63 \\ 79 \\ + 51 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 72 \\ 54 \\ + 19 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 65 \\ 26 \\ + 87 \\ \hline \end{array}$$

T. Find the sums.

$$\begin{array}{r} \text{a)} \quad 148 \\ + 996 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 9\,168 \\ + 5\,878 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 78\,945 \\ + 93\,165 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 592 \\ \quad 327 \\ + 168 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 5\,534 \\ \quad 1\,684 \\ + 3\,719 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 24\,163 \\ \quad 46\,272 \\ + 61\,938 \\ \hline \end{array}$$

U. Find the sums.

$$\text{a)} \quad 85 + 29 + 77 =$$

$$\text{b)} \quad 692 + 7\,834 + 8\,096 =$$

$$\text{c)} \quad 43\,124 + 9\,517 =$$

$$\text{d)} \quad 358\,726 + 81\,297 + 3\,216 =$$

2-C

V. Estimate the sums.

$$\begin{array}{r} \text{a)} \quad 582 \\ \quad 690 \\ + 163 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 1\,637 \\ \quad 6\,835 \\ + 3\,175 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c) } 81\,904 \\ 54\,061 \\ + 15\,243 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d) } 42\,563 \\ 4\,163 \\ + 6\,429 \\ \hline \end{array}$$

W. Word Problems. Estimate the following answer. Be sure to round to the largest place value before adding.

- a) Indonesia has 7 606 square kilometres of coral reef. Australia has 7 299 square kilometres of coral reef. The Philippines has 3 736 square kilometres of coral reef. Estimate how much coral reef there is in these three countries.

3-B

X. Find the differences.

$$\begin{array}{r} \text{a) } 76 \\ - 35 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b) } 98 \\ - 27 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c) } 863 \\ - 410 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d) } 1\,294 \\ - 681 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e) } 9\,758 \\ - 9\,421 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f) } 16\,789 \\ - 9\,205 \\ \hline \end{array}$$

$$\begin{array}{r} \text{g)} \quad 48\,296 \\ - 25\,134 \\ \hline \end{array}$$

$$\begin{array}{r} \text{h)} \quad 95\,627 \\ - 63\,025 \\ \hline \end{array}$$

$$\begin{array}{r} \text{i)} \quad 145\,789 \\ - 61\,425 \\ \hline \end{array}$$

Y. Rewrite each question in columns then find the differences.

$$\text{a)} \quad 569 - 421 =$$

$$\text{b)} \quad 7\,854 - 1\,304 =$$

$$\text{c)} \quad 15\,939 - 6\,714 =$$

$$\text{d)} \quad 86\,579 - 23\,104 =$$

$$\text{e)} \quad 157\,849 - 86\,531 =$$

$$\text{f)} \quad 136\,975 - 72\,041 =$$

3-D

Z. Find the differences.

$$\begin{array}{r} \text{a)} \quad 22 \\ - 4 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 43 \\ - 15 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 782 \\ - 43 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 981 \\ - 52 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 894 \\ - 265 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 943 \\ - 492 \\ \hline \end{array}$$

AA. Find the differences. Check your answers using addition.

$$\begin{array}{r} \text{a)} \quad 91 \\ - 28 \\ \hline \end{array} \quad \text{Check:}$$

$$\begin{array}{r} \text{b)} \quad 532 \\ - 240 \\ \hline \end{array} \quad \text{Check:}$$

$$\begin{array}{r} \text{c)} \quad 1\,751 \\ - 835 \\ \hline \end{array} \quad \text{Check:}$$

$$\begin{array}{r} \text{d)} \quad 76\,487 \\ - 5\,179 \\ \hline \end{array} \quad \text{Check:}$$

BB. Find the differences.

$$\begin{array}{r} \text{a)} \quad 468 \\ - 79 \\ \hline \end{array}$$

$$\begin{array}{r} \text{b)} \quad 752 \\ - 479 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c)} \quad 9\,364 \\ - 580 \\ \hline \end{array}$$

$$\begin{array}{r} \text{d)} \quad 8\,323 \\ - 4\,798 \\ \hline \end{array}$$

$$\begin{array}{r} \text{e)} \quad 52\,727 \\ - 3\,748 \\ \hline \end{array}$$

$$\begin{array}{r} \text{f)} \quad 62\,435 \\ - 17\,689 \\ \hline \end{array}$$

CC. Find the differences.

a)
$$\begin{array}{r} 420 \\ - 68 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 900 \\ - 325 \\ \hline \end{array}$$

c)
$$\begin{array}{r} 3\ 403 \\ - 849 \\ \hline \end{array}$$

d)
$$\begin{array}{r} 3\ 914 \\ - 1\ 765 \\ \hline \end{array}$$

e)
$$\begin{array}{r} 46\ 010 \\ - 7\ 143 \\ \hline \end{array}$$

f)
$$\begin{array}{r} 53\ 610 \\ - 46\ 929 \\ \hline \end{array}$$

DD. Rewrite each question in columns then find the difference.

a) $973 - 178 =$

b) $5\ 129 - 479 =$

c) $3\ 730 - 2\ 896 =$

d) $91\ 220 - 78\ 357 =$

3-E

EE. Estimate the differences.

a)
$$\begin{array}{r} 872 \\ - 465 \\ \hline \end{array}$$

b)
$$\begin{array}{r} 6\ 324 \\ - 389 \\ \hline \end{array}$$

$$\begin{array}{r} \text{c) } \quad 56\,907 \\ \quad \underline{-9\,014} \end{array}$$

$$\begin{array}{r} \text{d) } \quad 64\,932 \\ \quad \underline{-6\,755} \end{array}$$

FF. Estimate the following answers. Be sure to round to the largest place value possible before adding or subtracting. Remember to circle the information and underline what is being asked. Check your work using the answer key at the end of the exercise.

- a) When Mrs. Wu traded in her old car, it had 72 468 kilometres on the odometer. The new used car she bought had 8 975 kilometres on the odometer. Estimate the difference in kilometres between her old car and her new car.
- b) Mario's restaurant served 53 058 meals last year. This year to date, the restaurant has served 5 837 meals. Estimate how many more meals Mario's restaurant served last year.

3-F

GG. Word Problems. Use the 5 problem solving steps. Look for key words and patterns to help you choose the correct operation. Estimate the answer using rounded numbers if the numbers have 2 digits or more.

a) The WAC Bennett Dam near Revelstoke is 2 068 metres long. The Keenleyside Dam near Castlegar is 853 metres long. The Mica Dam near Revelstoke is 241 metres long. What is the total length of the three dams?

b) Raoul earned \$35 668 last year. This year he has earned \$42 791. How much more did Raoul earn this year?

- c) During one month, Jasmine spends 12 645 minutes sleeping and 5 723 minutes eating. How much time does she spend sleeping and eating?

HH. Find the sum or difference for each question.

a) $273 + 538 - 154 =$

b) $2\,875 - 496 + 162 =$

c) $2\,998 + 579 - 673 =$

d) $4\,723 + 5\,806 - 3\,924 =$

- e) Abigail earned \$383 and \$622 from her two jobs. She decided to keep \$265 for her Christmas shopping and put the rest of the money in the bank. Estimate how much money Abigail put in the bank

4-A

II. Circle the number of coins you would need to get from the first number to the second number. Make sure to use the least number of coins you can.

- a) 48¢ to 50¢



- b) 70¢ to 75¢



c) 80¢ to \$1.00



d) 50¢ to 75¢



4-B

JJ. State the number and kind of coins you would need to get from the first number to the second number. Make sure you use the least number of coins as possible.

a) 28¢ to 50¢

b) 70¢ to 75¢

c) 17¢ to 75¢

KK. State the number and kind of coins you would need to get change from \$1.00. Make sure you use the least number of coins as possible. Check your work using the answer key at the end of the exercise.

a) 37¢

b) 51¢

c) 67¢

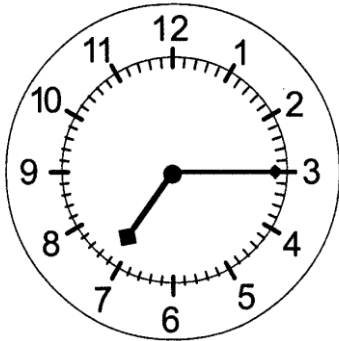
d) a litre of pop for 94¢

e) an apple pastry for 59¢

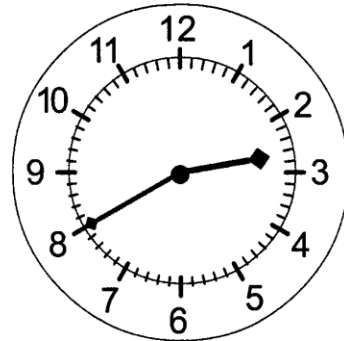
4-C

LL. Write the time shown on each clock.

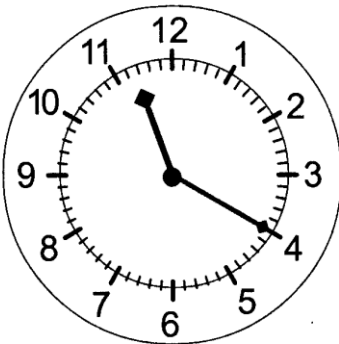
a)



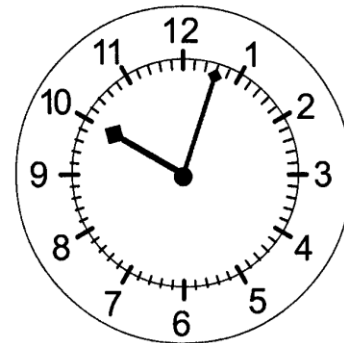
b)



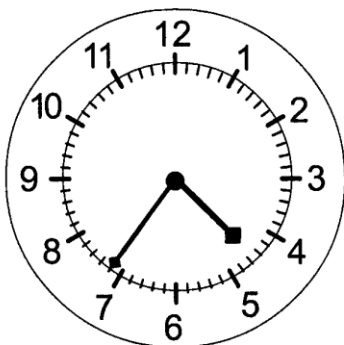
c)



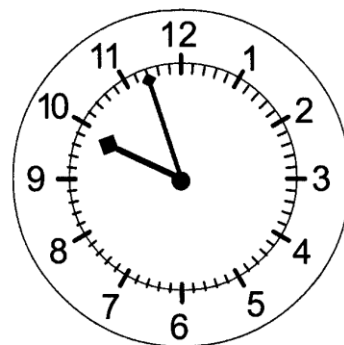
d)



e)

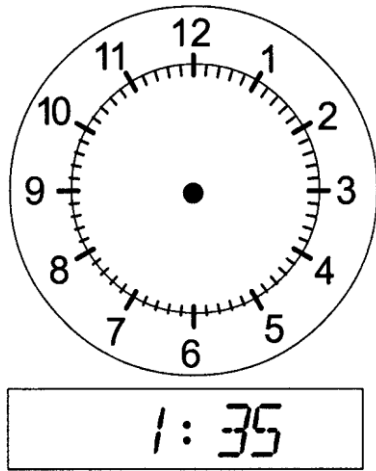


f)

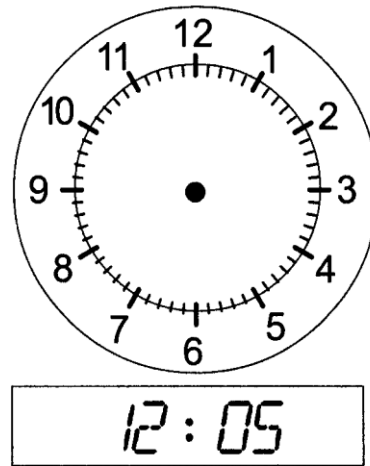


MM. Under each clock is a time on a digital clock. Put the hands on the analog clock to show the digital time.

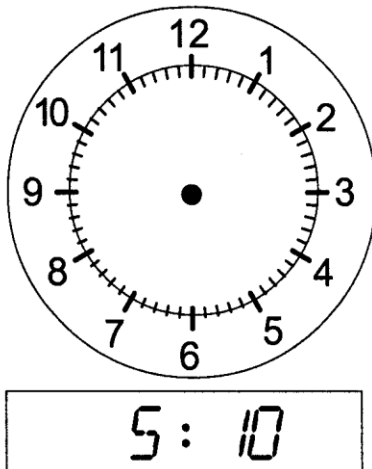
a)



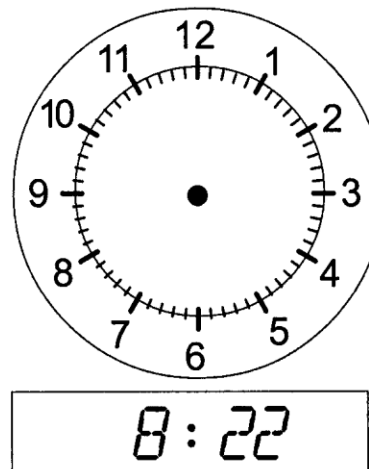
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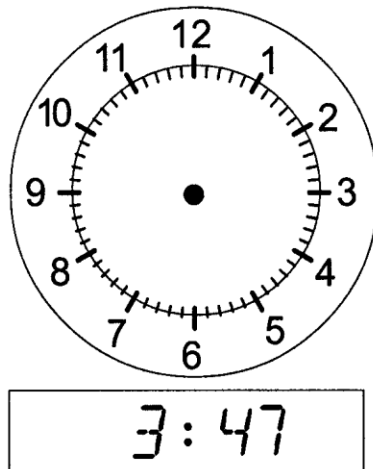
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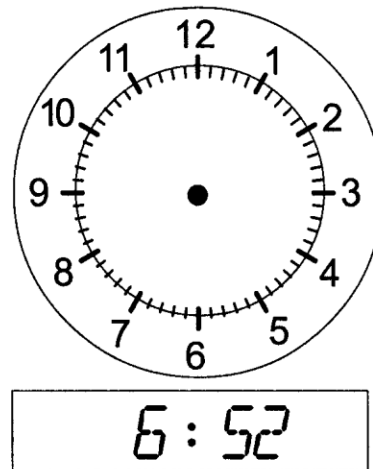
d)



e)



f)



NN. Change each 12-hour clock time to 24-hour clock time. Watch carefully for a.m. and p.m. Remember: only times between 1:00 p.m. and 11:59 p.m. need to be changed.

a) 7:32 a.m.

b) 11:06 p.m.

c) 2:43 p.m.

d) 10:18 a.m.

OO. Change each 12-hour clock time to 24-hour clock time. Watch carefully for a.m. and p.m. Remember: only times between 1:00 p.m. and 11:59 p.m. need to be changed.

a) 0127

b) 1548

c) 0612

d) 2053

4-D

PP. Add the times.

a)
$$\begin{array}{r} 5 \text{ h, } 32 \text{ min} \\ + 4 \text{ h, } 21 \text{ min} \\ \hline \end{array}$$

b)
$$\begin{array}{r} 3 \text{ h, } 27 \text{ min} \\ + 2 \text{ h, } 19 \text{ min} \\ \hline \end{array}$$

c)
$$\begin{array}{r} 7 \text{ h, } 41 \text{ min, } 23 \text{ s} \\ + 9 \text{ h, } 07 \text{ min, } 24 \text{ s} \\ \hline \end{array}$$

d)
$$\begin{array}{r} 6 \text{ h, } 15 \text{ min, } 08 \text{ s} \\ + 8 \text{ h, } 28 \text{ min, } 17 \text{ s} \\ \hline \end{array}$$

- f) Evian took 2 h, 43 min to bake some cookies and then another 3 h, 08 min to bake and decorate a cake. How long was Evian baking?

QQ. Subtract the times.

a)
$$\begin{array}{r} 5 \text{ h}, 53 \text{ min} \\ - 3 \text{ h}, 12 \text{ min} \\ \hline \end{array}$$

b)
$$\begin{array}{r} 9 \text{ h}, 47 \text{ min} \\ - 4 \text{ h}, 29 \text{ min} \\ \hline \end{array}$$

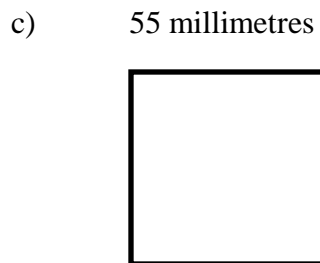
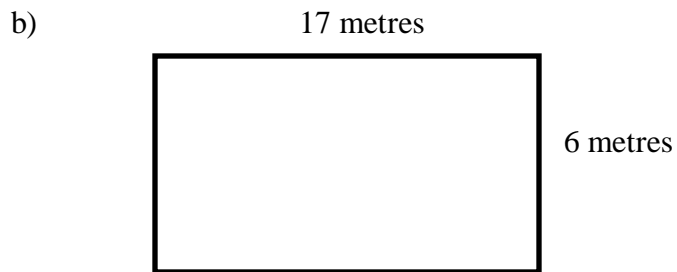
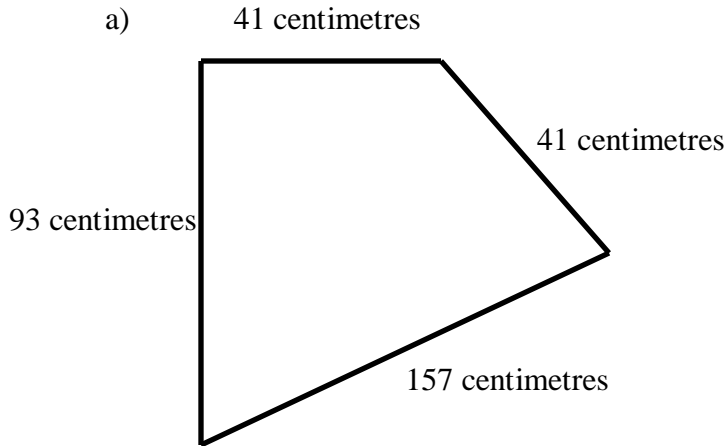
c)
$$\begin{array}{r} 15 \text{ h}, 59 \text{ min}, 39 \text{ s} \\ - 7 \text{ h}, 38 \text{ min}, 14 \text{ s} \\ \hline \end{array}$$

d)
$$\begin{array}{r} 18 \text{ h}, 34 \text{ min}, 42 \text{ s} \\ - 9 \text{ h}, 19 \text{ min}, 28 \text{ s} \\ \hline \end{array}$$

- e) Elan had 4 h, 31 min to do her errands. She took 2 h, 28 min to have her hair done. How much does Elan have left to finish her errands?

4-E

RR. Find the perimeter of the shape. Be sure to put the unit of measure in your answer.



d) Kono is going to put tape around a rectangular table. He has 2 500 cm of tape. The table measures 60 centimetres wide and 70 centimetres long. how much tape will he use?

e) Charla wants to put a ribbon around the edge of a square whose side measures 112 cm. How much ribbon does she need?

Answers to Book 2 Review

A.

- a) hundreds b) ten thousands c) millions d) ones

B.

- a) 3 b) 8 c) 7 d) 2

C.

- a) 182 374 b) 1 051 c) 3 142 650 d) 21 087

D.

- a) sixty-three thousand, three hundred seventy-four b) seven thousand, two hundred forty-eight

E.

- a) 3 214 567 b) 51 202

F.

- a) 3 000 + 400 + 70 + 9 b) 20 000 + 1 000 + 10 + 6

G.

- a) 4 133 248 b) 182 304

H.

- a) 23 43 312 633 2 154 2 514 5 412 b) 45 55 445 454 544 554 5 454 5 544

I.

- a) > b) > c) < d) =

J.

- a) 700 b) 3 500

K.

- a) 41 000 b) 65 000

L.

- a) 80 000 b) 580 000

M.

- a) 400 000 b) 8 700 000

N.

- a) 7 000 000 b) 4 000 000

O.

a)

Sea	Number	Rounded Number
Bering Sea	1 547	1 500
Caribbean Sea	2 647	2 600
Indian Ocean	3 963	4 000
Pacific Ocean	4 028	4 000

Sea	Number	Rounded Number
Yellow Sea	293 960	300 000
Red Sea	452 990	500 000
Black Sea	507 900	500 000

P.

- a) 77 b) 79 c) 96 d) 98 e) 98 f) 109

Q.

- a) 999 b) 978 c) 899 d) 8 888 e) 10 664 f) 12 936

R.

- a) 488 b) 5 659 c) 899 d) 15 559 e) 105 769 f) 69 888

S.

- a) 134 b) 146 c) 124 d) 193 e) 145 f) 178

T.

- a) 1 144 b) 15 046 c) 172 100 d) 1 187 e) 10 937 f) 132 373

U.

- a) 191 b) 16 622 c) 52 641 d) 443 239

V.

- a) $600 + 700 + 200 = 1\,500$ b) $2\,000 + 7\,000 + 3\,000 = 12\,000$
c) $80\,000 + 50\,000 + 20\,000 = 150\,000$ d) $43\,000 + 4\,000 + 6\,000 = 53\,000$

W.

- a) $8\,000 + 7\,000 + 4\,000 = 19\,000$ square kilometres

X.

- a) 41 b) 71 c) 453 d) 613 e) 337 f) 7 584
g) 23 162 h) 32 602 i) 84 364

Y.

- a) 148 b) 6 550 c) 9 225 d) 63 475 e) 71 318 f) 64 934

Z.

- a) 18 b) 28 c) 739 d) 924 e) 629 f) 451

AA.

- a) $63, 63 + 28 = 91$ b) $292, 292 + 240 = 532$ c) $916, 916 + 835 = 1\,751$
d) $71\,208, 71\,308 + 5\,179 = 76\,487$

BB.

- a) 389 b) 273 c) 8 784 d) 3 525 e) 48 979 f) 44 746

CC.

- a) 352 b) 875 c) 2 554 d) 2 149 e) 38 867 f) 6 681

DD.

- a) 795 b) 4 650 c) 834 d) 12 863

EE.

- a) $900 - 500 = 400$ b) $6\,300 - 400 = 5\,900$ c) $57\,000 - 9\,000 = 48\,000$
d) $65\,000 - 7\,000 = 58\,000$

FF.

- a) $70\,000 - 9\,000 = 61\,000$ kilometres b) $50\,000 - 6\,000 = 44\,000$ meals

GG.

- a) 3 162 metres b) \$7 123

HH.

- a) 657 b) 2 541 c) 2 904 d) 6 605 e) \$740

II.

- a) 2 pennies b) 1 nickel c) 2 dimes d) 1 quarter

JJ.

- a) 2 pennies, 2 dimes b) 1 nickel c) 3 pennies, 1 nickel, 2 quarters

KK.

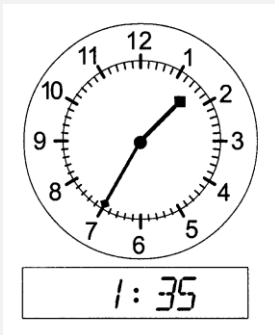
- a) 3 pennies, 1 dime, 2 quarters b) 4 pennies, 2 dimes, 1 quarter
c) 3 pennies, 1 nickel, 1 quarter d) 1 penny, 1 nickel
e) 1 penny, 1 nickel, 1 dime, 1 quarter

LL.

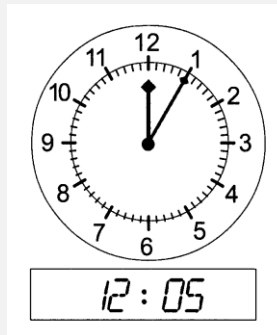
- a) 7:15 b) 3:40 c) 11:20 d) 10:03 e) 4:36
f) 9:57

MM.

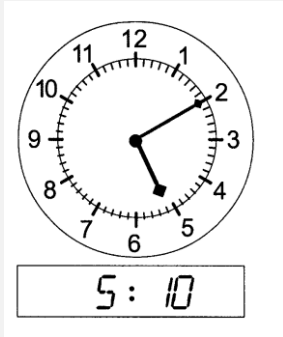
a)



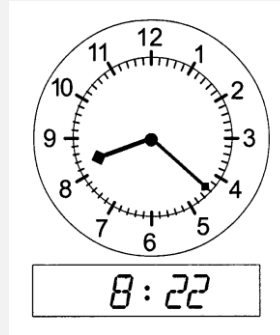
b)



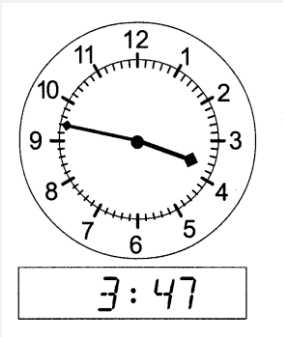
c)



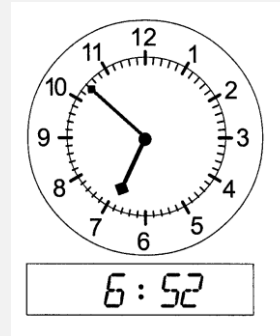
d)



e)



f)



NN.

a) 0732

b) 2306

c) 1443

d) 1018

OO.

a) 1:27 p.m.

b) 3:48 p.m.

c) 6:12 a.m.

d) 8:53 p.m.

PP.

a) 9 h, 53 min

b) 5 h, 46 min

c) 16 h, 48 min, 47 s

d) 14 h, 43 min, 25 s

QQ.

a) 2 h, 41 min

b) 5 h, 18 min

c) 8 h, 21 min, 25 s

d) 9 h, 15 min, 14 s

RR.

a) 332 centimetres

b) 46 metres

c) 220 millimetres

d) 260 centimetres

e) 448 centimetres

CONGRATULATIONS!!

Now you have finished Book 2.

TEST TIME!

Ask your instructor for the Practice Test for this book.

Once you've done the practice test,
you need to do the end test.

Again, ask your instructor for this.

Good luck!

Glossary

addends The numbers to be added together in an addition question. In $3 + 5 = 8$, the addends are 3 and 5.

axis Any straight line used for measuring or as a reference.

balance Balance has many meanings. In money matters, the balance is the amount left. It might be the amount left in a bank account (bank balance) or it might be the amount you still must pay on a bill (balance owing).

cancelled cheque A cheque that has been cashed. The cheque is stamped, or cancelled, so it is no longer negotiable.

circumference The distance around a circle; the perimeter of a circle.

commission Salespeople may be paid a percentage of the money made in sales. The commission is part or all their earnings.

common fractions eg, $\frac{2}{3}$, $\frac{3}{7}$, $\frac{49}{50}$

cross multiply In a proportion, multiply the numerator of the first fraction times the denominator of the second fraction. Then multiply the denominator of the first fraction times the numerator of the second fraction. In a true proportion, the products of the cross multiplication are equal.

denominator The bottom number in a common fraction; tells into how many equal parts the whole thing has been divided.

diameter The distance across a circle through its centre.

difference The result of a subtraction question, the answer. Subtraction gives the difference between two numbers.

digit Any of the ten numerals (0 to 9) are digits. This term comes from our ten fingers which are called digits. The numerals came to be called "digits" from the practice of counting on the fingers!

discount An amount taken off the regular cost. If something is bought "at a discount" it is bought at less than the regular price.

divide To separate into equal parts.

dividend The number or quantity to be divided; what you start with before you divide.

divisor The number of groups or the quantity into which a number (the dividend) is to be separated.

equal = The same as

equation A mathematical statement that two quantities are equal. An equation may use numerals with a letter to stand for an unknown quantity. $6 + Y = 9$

equivalent Equal in value; equivalent numbers (whole or fractions) can be used interchangeably; that is, they can be used instead of each other.

estimate Make an approximate answer. Use the sign \approx to mean approximately equal.

factors The numbers or quantities that are multiplied together to form a given product. $5 \times 2 = 10$, so 5 and 2 are factors of 10.

fraction Part of the whole; a quantity less than one unit.

horizontal in a flat position; we are horizontal when we lie in a bed. A horizontal line goes across the page.

improper fraction A common fraction with a value equal to or more than one.

infinite Without end, without limit.

invert To turn upside down.

like fractions With the same denominators.

lowest terms When the terms of a common fraction or ratio do not have a common factor (except 1), the fraction or ratio are in lowest terms (also called simplest form).

minuend The first number in a subtraction question.

mixed number A whole number and a common fraction. $1 \frac{3}{4}$

mixed decimal A whole number and a decimal fraction. 1.75

multiple If a certain number is multiplied by another number, the product is a multiple of the numbers. Think of the multiplication tables. For example, 2, 4, 6, 8, 10, 12, 14...are multiples of 2.

multiplicand The number to be multiplied.

multiplier The number you multiply by.

negotiable Something which can be cashed, that is, exchanged or traded as money.

numbers Numbers represent the amount, the place in a sequence; *number* is the idea of quantity or order.

numerals The digits 1,2,3,4,5,6,7,8,9,0 are also called numerals. These ten digits are combined to make infinite numerals. Digits are like the letters, numerals are like the words and numbers are the meaning.

numerator The top number in a common fraction; the numerator tells how many parts of the whole thing are being considered.

overdrawn If the value of the cheques or money taken from a bank account is higher than the amount of money in the account, then the account is overdrawn. The account is "in the hole" or "in the red" are expressions sometimes used.

parallel Two objects or lines side by side, never crossing and always the same distance from each other. Railway tracks are parallel, the lines on writing paper are parallel.

percent % For every one hundred.

perimeter The distance around the outside of a shape.

place value We understand numbers by the way the digits (numerals) are arranged in relationship to each other and to the decimal point. Each position has a certain value. Our number system is a **decimal system**. The place value is based on **ten**.

prime number A number that can only be divided evenly by itself and 1.

product The result of a multiplying question, the answer.

proper fraction A common fraction with a value less than one.

proportion Generally, proportion is a way of comparing a part of something to the whole thing. Eg. his feet are small in proportion to his height. In mathematics, proportion is used to describe two or more ratios that are equivalent to each other.

quotient The result of a division question; the quotient tells how many times one number is contained in the other.

radius The distance from the centre of a circle to the outside of the circle.

ratio The relationship between two or more quantities. Eg. the ratio of men to women in the armed forces is 10 to 3 (10:3)

reciprocal A number, when multiplied by its reciprocal, equals 1. To find the reciprocal of a common fraction, invert it. $\frac{3}{5} \times \frac{5}{3} = 1$

reduce Write a common fraction in lowest terms. Divide both terms by same factor.

remainder The amount left when a divisor does not divide evenly into the dividend. The remainder must be less than the divisor.

sign In mathematics, a symbol that tells what operation is to be performed or what the relationship is between the numbers.

- + plus, means to add
- minus, means to subtract
- × multiplied by, "times"
- ÷ divided by, division
- = equal, the same quantity as
- ≠ not equal
- ≈ approximately equal
- < less than
- > greater than
- ≤ less than or equal to
- ≥ greater than or equal to

simplify See *reduce*.

subtrahend The amount that is taken away in a subtraction question.

sum The result of an addition question, the answer to an addition question.

symbol A written or printed mark, letter, abbreviation etc. that stands for something else.

term a) A definite period of time, such as a school term or the term of a loan.

b) Conditions of a contract; the terms of the agreement. c) In mathematics, the quantities in a fraction and in a ratio are called the *terms* of the fraction or the *terms* of the ratio. In an algebra equation, the quantities connected by a + or - sign are also called terms.

total The amount altogether.

transaction One piece of business. A transaction often involves money. When you pay a bill, take money from the bank or write a cheque, you have made a transaction.

unit Any fixed quantity, amount, distance or measure that is used as a standard. In mathematics, always identify the unit with which you are working. Eg. 3 km, 4 cups, 12 people, \$76, 70 books, 545 g.

unit price The price for a set amount. Eg. price per litre, price per gram.

unlike fractions Fractions which have different denominators.

vertical in an up and down position; we are vertical when we are standing up. On a page, a vertical line is shown from the top to the bottom of the page.