GRADE 6

Mathematics

BC EDITION

COMPLETE GRADE 6 MATH CURRICULUM

⭐ questions ranging from easy to advanced

⭐ step by step guided examples

⭐ chapter tests included

DYNAMIC MATH

LOOKING FOR MORE?

+ additional resources

+ guided video lessons

GET EXTRA SUPPORT
math-help.ca/more

DYNAMIC DC CLASSROOM

math-help.ca

THE DYNAMIC MATH PROGRAM

BOOKS

The Dynamic Math workbooks cover the mathematics curriculum for Grades 4 to 12. The books are grade and province specific, covering the same material that is taught in the classroom.

VIDEO LESSONS

Does your child need more help? We have a growing library of math video lessons that will help your child with over-the-shoulder instruction. It's like having your very own "tutor in your pocket"!

math-help.ca/videos

EXTRA ONLINE CONTENT

Our math instructors are always looking for ways to help students achieve greater success in math. Make sure to visit our website where you can find extra resources and the latest updates.

math-help.ca/more

TEACHERS

Teachers and schools can buy class sets of the Dynamic Math books to use in their classrooms as workbooks or textbooks. Since the books are specifically aligned with the curriculum in each province, they are a great resource for schools.

CALL TO DISCUSS OPTIONS
FOR YOUR CLASSROOM   1-604-592-9309

WHY DYNAMIC MATH?

Dynamic Math workbooks are written by teachers directly for each province. This ensures that you are getting the exact same material that is being taught in the classroom. Our teachers also produce engaging online content to further support and enhance learning.

MORE THAN JUST A BOOK!

math-help.ca

Access extra support online

Go to www.math-help.ca/more

✓ Increase understanding and improve your grades

✓ Get extra help with guided video lessons, and more

✓ Learn about our math program at **math-help.ca/more**

DYNAMIC DC CLASSROOM

✉ Suite 207 8501 162nd Street
Surrey, BC V4N 1B2

☎ 604.592.9309

@ sales-inquiries@dynamic-classroom.ca

▭ www.dynamic-classroom.ca

Contributing Author: Alan R. Taylor, Ed.D.

Dear Teachers,

Dynamic Math is a company founded by teachers, and so we understand just how difficult your job can be.

This is why we have set out to help you by providing a complete curriculum-based math book so that you don't have to spend time searching for the right resource. Our efforts provide the means for you to get right to teaching, helping your students succeed in math.

Additionally, we provide resources such as extra worksheets and tests, with answer keys. These additional options are available with a minimum purchase, and since our books are up to 70% less than traditional textbooks, this provides you with a very affordable option to implement the Dynamic Math program in your school.

Both Online & Offline Resources

We know that every teacher has their own unique teaching style and have students that all learn in different ways. That's why we offer our resources in both the printed and digital flipbook format.

So, whether you prefer flipping through a hard copy on your desk or accessing the full book from your tablet while sitting on the couch, we have you covered.

With books that are 100% aligned to the curriculum for each province, you can be confident that the right resource is at your fingertips.

Our math books provide students with all the instructions and exercises right at their desk, while our digital flipbook and other resources provide teachers with a quick and easy way to project any of the content to a screen or smartboard.

This provides a truly interactive way to go through the material in the classroom and ensures that students are following along.

Combined with Dynamic Math optional videos, we are convinced that teachers, their students, and their families will confidently work through the learning requirements each year, in both the classroom and at home.

Table of Contents
BC Grade 6 Mathematics

There are several skills that are important when working in mathematics. If you use these skills when you work on math questions, it will help you to think about how to get to the answers.

These skills are:

1. Communicating
   Communicating is the process of expressing mathematical ideas and your understanding of them orally, visually, and in writing. To communicate, you use numbers, symbols, pictures, graphs, diagrams, and words to show that you know what is being said or asked. You are expected to be able to express, describe, explain, and apply mathematical ideas in several different ways.

2. Representing
   Representing involves different ways of showing mathematical ideas. To represent, you use drawings, physical models, equations, charts, and graphs to help make things clearer so that you can answer the question.

3. Connecting
   Connecting involves relating mathematical concepts to each other. You should also be able to connect mathematical ideas to the real world.

4. Reasoning
   Reasoning involves understanding the relationships that apply to numbers, shapes, or operations. To reason, you have to define the relationship, analyze why it is true, and determine to what group of numbers, shapes, or operations it can be applied.

Unit 9 gives more details about each of these skills and gives you examples and questions to help you build your skills in these areas.

UNIT 1
NUMBER CONCEPTS

If you need additional help, there are more resources available at math-help.ca/more.

1.1 Place Value

Numerals Greater than 1 000 000

Large numbers are used when we talk about distances in the universe, numbers of cells or bacteria, the memory in a computer, or the population of a country. For example, the population of Canada is over 37 000 000 (thirty-seven million) and the distance from the earth to the sun is about 146 000 000 km (one hundred forty-six million). When these large numbers are written with digits, they are called numerals (125 320 000). When we read these numbers using words, they are called number words (one hundred twenty-five million three hundred twenty thousand).
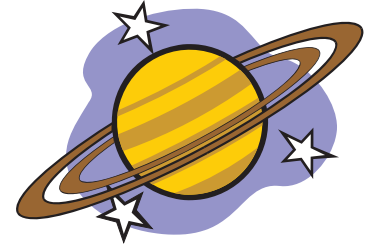
To gain a better understanding of these large numbers, it is important to know what the value of each digit is. We do this with place value, which you have used before with smaller numbers.

Example: The number **2 538 094** is shown next with the place value for each of its digits.

2	5	3	8	0	9	4
↑ millions	↑ hundred thousands	↑ ten thousands	↑ thousands	↑ hundreds	↑ tens	↑ ones

two million	five hundred thirty-eight thousand	zero hundreds	Ninety-four

The above numeral (number) has 2 <u>millions</u>, 5 <u>hundred thousands</u>, 3 <u>ten thousands</u>, 8 <u>thousands</u>, 0 <u>hundreds</u>, 9 <u>tens</u>, and 4 <u>ones</u>. When we describe the numeral with a number word, we usually combine the millions, the thousands, and the tens and ones. The **number word** is two million five hundred thirty-eight thousand ninety-four.

Examples with Solutions

1. Which digit is located in each of the following place-values for the numeral **7 029 438**?

    a. millions   7, which represents 7 million.

    b. ten thousands   2, which represents 20 thousand.

    c. thousands   9, which represents 9 thousand.

    d. hundreds   4, which represents 4 hundreds.

    e. tens   3, which represents 3 tens.

f. ones   8, which represents 8 ones.

2. Write number words for the following numerals.

a. 235 608
                                                  <u>235</u> <u>608</u>
                                                  There are 235 thousands (2 hundred thousands, 3
                                                  ten thousands, and 5 one thousands), 6 hundreds,
                                                  and 8 ones. The number word is two hundred
                                                  thirty-five thousand six hundred eight.

b. 3 065 240
                                                  <u>3</u> <u>065</u> <u>240</u>
                                                  There are 3 millions, 65 thousands (6 ten
                                                  thousands and 5 one thousands), two hundreds,
                                                  and 4 tens (or forty). The number word is three
                                                  million sixty-five thousand two hundred forty.

c. 12 560 032
                                                  <u>12</u> <u>560</u> <u>032</u>
                                                  There are 12 millions, 560 thousands, 3 tens and
                                                  2 ones (or thirty-two). The number word is
                                                  twelve million five hundred sixty thousand thirty-
                                                  two.

3. Write the following number words as numerals.

a. five million thirty thousand eight   5 030 847
    hundred forty-seven

b. seventy thousand fifteen   70 015

c. twelve million two hundred six   12 000 206

d. three million seven hundred five thousand   3 705 034
    thirty-four

When we write numbers with <u>more</u> than 4 digits, we use a space instead of a comma to separate groups of three. This is done because Canada has adopted the metric system and in many other countries a comma is used as a decimal point.

Examples:

1. 27 500 instead of 27,500

2. 5 345 420 instead of 5,345,420

3. 3540 instead of 3,540 (We don't leave a space if there are only 4 digits.)

Exercises 1.1a

1. What is the value of the digit asked for in each of the following numbers?

    a. 405 632   digit 6

    b. 1 040 670   digit 7

    c. 9 840 035   digit 9

    d. 1 302 670   digit 3

    e. 2 086 075   digit 8

2. Write the numeral for each number word.

    a. three hundred ten thousand thirty

    b. two million five hundred three thousand
       four hundred twenty-one

    c. seven million seventy thousand seventy

    d. five hundred thousand five

    e. six million six thousand six

    f. forty thousand fifteen

    g. one million twenty thousand three
       hundred

    h. one hundred thousand one hundred one

3. Write the number word for each numeral.

    a. 2 506 320

    b. 1 035 028

    c. 6 060 060

    d. 5 505 055

    e. 10 010 001

    f. 3 000 033

    g. 50 001 001

    h. 707 077 007

4. The distance from the earth to the moon is about 384 403 km. Write this numeral as a number word.

5. A byte is a measure of information storage on a computer. A file in a computer takes up 1 250 344 bytes. Write this numeral as a number word.

6. The population of the United States is about three hundred twenty-nine million nine hundred seventy thousand. Write this number word as a numeral.

7. There are about fifty-five million six hundred nineteen thousand people in England. Write this number word as a numeral.

8. A provincial park has about two hundred twenty-three thousand six hundred trees in it. Write this number word as a numeral.

Extra for Experts   **Who Am I?**

9. I am a number with 6 digits. My ones digit is 6 and my tens digit is one less. My other four digits are all one less than my tens digit.

10. I have 7 digits. All of my digits are the same and their sum is 14.

11. I have 7 digits. Both my millions digit and my ones digit are equal to 5. Each of the digits in between are two less than five.

12. I have nine digits, each of which is equal. My digits sum to 27.

13. I am greater than one hundred thousand but less than one hundred thousand one hundred. I have a total of six digits and all of them are either zeros or ones. My digits sum to 2. What possible numbers am I?

14. I have 7 digits. My millions digit is 3 and all other digits to the right of it are one more than the digit on its left. What number am I?

15. There are five digits in my number. The first and the last are 1. The second is twice the sum of the first and last, the third is half the second and the fourth is one more than the third. What number am I?

Numerals less than One Thousandth

Small Numbers

We can think of small numbers as numbers that are little when compared with the numbers we use in everyday life. These small numbers often occur in fields such as chemistry, electronics, and quantum physics.
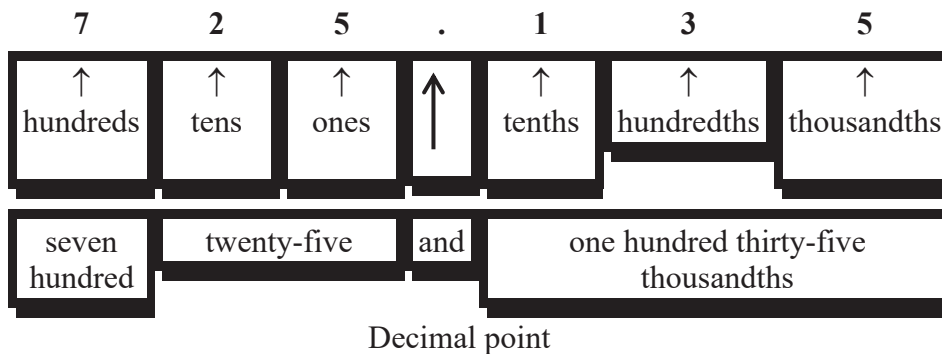
The Decimal Point

We can write numbers as large or as small as we want, using our decimal system of numbers. In this system, digits can be placed to the left or to the right of a **decimal point**. Numbers to the left are equal to or greater than one, and numbers to the right are less than one.

Place Value and the Decimal Point

To the **right** of the ones column is a decimal point, followed by the columns corresponding to place values of tenths, hundredths, and thousandths.

Example: The number 725.135 is shown with the place value for each of its digits below.

7	2	5	.	1	3	5
↑ hundreds	↑ tens	↑ ones	↑	↑ tenths	↑ hundredths	↑ thousandths

seven hundred	twenty-five	and	one hundred thirty-five thousandths

Decimal point

The above **numeral** (number) has 7 hundreds, 2 tens, 5 ones, 1 tenth, 3 hundredths, and 5 thousandths. The **number word** is seven hundred twenty-five **and** one hundred thirty-five thousandths.

Writing Decimal Numerals and Decimal Number Words

We usually use the word "**and**" to represent the decimal point.

ABORIGINAL APPLICATIONS
THE SALMON

Artist: T. Isaac

The Salmon is an extremely important part of the lifestyle and culture of Coastal First Nations people. Its importance as a food source and its impact on the way of life of Aboriginals gives the Salmon a position of special honour and respect.

Through various means of food preservation, such as smoking, canning, and drying, the Salmon provides nourishment throughout the year. The Salmon is an important part of special gatherings and artwork, and serves as a symbol of renewal and prosperity.

Math Applications

1. The village fishermen caught a total of 1867 salmon in a food fishing expedition. Round the number of salmon to the nearest…

   a. 1000

   b. 100

   c. 10

2. A large spring salmon can have a weight (mass) of 40 kg. Show 40 as a product of prime factors.

Answers
1. a) 2000   b) 1900   c) 1870   2. $2 \times 2 \times 2 \times 5$

ANSWERS TO

EXERCISES AND

UNIT TESTS

UNIT 1

Exercises 1.1a (page 4)
1. a) 600   **b)** 70   **c)** 9 000 000   **d)** 300 000
e) 80 000   **2. a)** 310 030   **b)** 2 503 421
c) 7 070 070   **d)** 500 005   **e)** 6 006 006
f) 40 015   **g)** 1 020 300   **h)** 100 101
3. a) two million five hundred six thousand
three hundred twenty   **b)** one million thirty-five
thousand twenty-eight   **c)** six million sixty
thousand sixty   **d)** five million five hundred five
thousand fifty-five   **e)** ten million ten thousand
one   **f)** three million thirty-three   **g)** fifty
million one thousand one   **h)** seven hundred
seven million seventy seven thousand seven
4. three hundred eighty-four thousand four
hundred three   **5.** one million two hundred fifty
thousand three hundred forty-four
6. 300 050 000   **7.** 50 425 000   **8.** 223 600
9. 444 456   **10.** 2 222 222   **11.** 5 333 335
12. 333 333 333   **13.** 100 010 or 100 001
14. 3 456 789   **15.** 14 231

Exercises 1.1b (page 9)
1. a) 20   **b)** $\frac{4}{10}$ or 0.4   **c)** $\frac{6}{100}$ or 0.06   **d)** $\frac{8}{1000}$ or
0.008   **e)** 3   **2. a)** twenty-five and fifteen
thousandths   **b)** two hundred fifty and six
thousandths   **c)** forty-five and one hundred
eleven thousandths   **d)** two thousand three
hundred and five hundred eight thousandths
e) two hundred fifty and thirteen thousandths
f) three thousand thirty and three hundredths
g) one thousand three and three thousandths
h) seven thousand and seventy-seven
thousandths   **i)** two hundred five thousand and
twenty-nine hundredths   **j)** three hundred ten
thousand five and six tenths   **3. a)** 350.029
b) 45.045   **c)** 205.02   **d)** 7500.075
e) 100 010.1   **f)** 600 006.06   **g)** 100 101.01
4. a) 1.248   **b)** 7.707   **c)** 643.21

Exercises 1.2 (page 12)
1. a) 53   **b)** 53.5   **c)** 53.46   **2. a)** 600   **b)** 610
c) 607   **d)** 607.1   **e)** 607.05   **3.** 130   **4.** 1900
5. $123.30   **6.** 35.81   **7.** 5, 6, 7, 8 or 9
8. 0, 1, 2, 3 or 4   **9.** 5, 6, 7, 8 or 9

10. 0, 1, 2, 3 or 4

Exercises 1.3 (page 16)
1. 14 000 000   **2.** $4 049 000   **3.** 89 000
4. 960 000   **5.** About 30 720 000   **6.** $726 000
7. 440 000   **8.** 1 014 000 bytes

Exercises 1.4 (page 20)
1. a) 5, 71   **b)** 7, 29   **c)** 3, 73   **d)** 11, 31
e) 13, 23, 43, 53   **f)** 5   **2. a)** 1, 2, 4, 5, 8, 10, 20,
40; 2, 5   **b)** 1, 5, 11, 55; 5, 11   **c)** 1, 2, 5, 7, 10,
14, 35, 70; 2, 5, 7   **d)** 1, 2, 4, 5, 10, 20, 25, 50,
100; 2, 5   **e)** 1, 3, 5, 15, 25, 75; 3, 5   **3. a)** 3, 6,
9, 12
b) 2, 4, 6, 8, 20   **c)** 6, 12, 72   **d)** 8, 16
4. a) prime   **b)** composite   **c)** prime
d) composite   **e)** composite   **f)** composite
5. a) 49, 56, 63, 70, 77   **b)** 108, 117, 126, 135
c) 220, 240, 260   **6.** 2, 3, 5, 7, 11, 13, 17, 19
7. a) 1, 5, 25   **b)** 1, 3   **8. a)** 35, 70   **b)** 24, 48,
72, 96   **9.** 1, 2, 4   **10.** 1, 6   **11.** 30, 60, 90
12. 2   **13.** 66, 72, 78, 84, 90, 96   Who am I?
210

Exercises 1.5 (page 25)
1. GCF = 4, LCM = 224   **2.** GCF = 4,
LCM = 240   **3.** LCM = 60   **4.** GCF = 14
5. GCF = 15, LCM = 1050   **6.** GCF = 3,
LCM = 420   **7.** 60 minutes   **8.** 35 or 105
9. 7   **10.** 5   **11.** 10, 20, 40   **12.** 15 and 30
13. a) 9:00 am   **b)** Bus A will have completed 3
trips.   **c)** Bus B will have completed 2 trips.

Exercises 1.6 (page 29)
1. a) proper   **b)** improper   **c)** proper
d) improper   **e)** improper   **f)** proper
g) improper   **h)** proper   **i)** improper   **j)** proper
k) improper   **l)** improper   **m)** improper
n) proper   **2. a)** $\frac{5}{2}$ **b)** $\frac{11}{3}$ **c)** $\frac{41}{8}$ **d)** $\frac{21}{5}$ **e)** $\frac{101}{10}$
f) $\frac{101}{5}$ **g)** $\frac{33}{5}$ **h)** $\frac{103}{20}$ **i)** $\frac{1003}{10}$ **j)** $\frac{85}{4}$ **k)** $\frac{63}{4}$ **l)** $\frac{69}{8}$
m) $\frac{12}{11}$ **n)** $\frac{601}{20}$ **3. a)** $1\frac{1}{3}$ **b)** $1\frac{2}{3}$ **c)** $1\frac{1}{8}$ **d)** $1\frac{4}{7}$
e) $1\frac{2}{7}$ **f)** $4\frac{1}{2}$ **g)** $2\frac{1}{3}$ **h)** $4\frac{1}{3}$ **i)** $2\frac{2}{3}$ **j)** $3\frac{1}{10}$ **k)** $3\frac{1}{7}$
l) $2\frac{2}{13}$ **m)** $5\frac{5}{9}$ **n)** $1\frac{1}{999}$ **4.** $\frac{8}{6}$ or $\frac{9}{7}$ **5.** $\frac{5}{2}, \frac{7}{4}, \frac{8}{5}, \frac{9}{6}$
6. $1\frac{1}{2}$ **7.** $3\frac{1}{4}$ **8.** $7\frac{3}{4}$

Dynamic Math Resources

Dynamic Classroom has created resources that align with the provincial curriculum for Grades 3 to 12. The following resources are available in British Columbia.

Math Workbooks

ELEMENTARY	HIGH SCHOOL
Grade 3 Mathematics	Grade 8 Mathematics
Grade 4 Mathematics	Grade 9 Mathematics
Grade 5 Mathematics	Grade 10 Foundations and Pre-Calculus
Grade 6 Mathematics	Grade 11 Pre-Calculus
Grade 7 Mathematics	Grade 12 Pre-Calculus

Orders can be placed online at www.dynamicmath.ca.

Video Subscriptions

Access to all videos for Grades 4-10	Monthly - $9.95 per month
	6 Months - $49.95
	12 Months - $79.95

Orders for videos can be placed online at www.dynamicmath.ca.

If you would like to order Dynamic Math resources for your school, please email us at:
info@dynamic-classroom.ca

Resources from Dynamic Classroom

BC and Yukon

Order Books - https://www.math-help.ca/dynamic-math-store

Enhance learning and results!

	Dynamic Math Videos Get Started with a free trial https://www.math-help.ca/math-videos

Coming Soon!

Grade 3 Ontario Grade 9 Ontario	**French Editions Gr 4 - 8** BC AB/SK/MB Atlantic Canada	**K to Grade 2** BC AB/SK/MB Atlantic Canada

Sign up for your free account! https://www.math-help.ca/free

www.ClassroomReady.com - Reading Comprehension

Monthly News

Available in both English and French for Grades
3-5, Grades 5-7, and Grades 8-10.

Weekly News

Available in English for Grades 5-7 and Grades
8-10.

Science News

Available in English for Grades 3-5, Grades 5-7,
and Grades 8-10.

MORE THAN JUST A BOOK!

▶ Guided video lessons that align directly with the curriculum. Learn more and gain access at: math-help.ca/videos

Extra content available online. Visit our website for all the resources and updates: math-help.ca/more

✚ Students learn more and get better grades with the full Dynamic Math program. Get started today!

LEARN MORE » math-help.ca/more

> "My son would never have passed grade 10 without Dynamic Math. Thank you!
>
> My daughter loves your math books because she can work through them on her own. We'll definitely be buying the next grade in the fall.
>
> I was so happy to finally find a math workbook that was exactly what my son was doing in class."
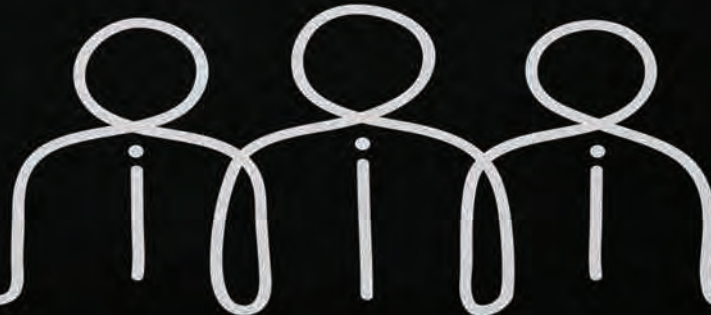
DYNAMIC DC CLASSROOM

BC Grade 6 Mathematics

SKU# 2894623

$29.95 CAD

ISBN 978-1-988243-11-5

4 00028 94623 4

9 781988 243115