

Representing Numbers in the Millions

GOAL

Represent and describe numbers in the millions using a place value chart.

1. Write each number in standard form.

a) 23 million 522 thousand 108 = 23 522 108

b) 7 million 199 thousand 247 = 7 199 247

c) 873 million 902 thousand 111 = 873 902 111

2. Write each number the way you would read it.

a) 45 817 299 = 45 million 817 thousand 299

b) 82 374 231 = 82 million 374 thousand 231

3. Write each number the way you would read it.

a)

Millions			Thousands			Ones		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
	3	2	5	7	1	8	5	2

32 million 571 thousand 852

b)

Millions			Thousands			Ones		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
1	4	6	2	8	4	5	5	9

146 million 284 thousand 559

4. Write each number in the place value chart below.

a) 62 351 927

b) 835 294 243

c) 94 281 493

	Millions			Thousands			Ones		
	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
a)		6	2	3	5	1	9	2	7
b)	8	3	5	2	9	4	2	4	3
c)		9	4	2	8	1	4	9	3

At-Home Help

Here are three different ways to express a numeral:

- in standard form:
12 345 678
- as you would read it:
12 million 345 thousand 678
- in a place value chart

GOAL

Describe billions in various ways.

1. The city of London, England, has about 10 million people in it. About how many cities the size of London would it take to reach 1 billion people? Fill in the blanks to solve this problem.

1 city = 10 million people

10 cities = 100 million people

100 cities = 1000 million people, or 1 billion people

At-Home Help

A **billion** is a name for a thousand millions.

1 billion = 1 000 000 000



2. Ten square metres of field contain about 1 000 000 blades of grass. A large field contains 10 000 square metres. About how many blades of grass are in the field? Fill in the blanks to solve this problem.

10 square metres = 1 000 000 blades of grass

100 square metres = 10 000 000 blades of grass

1000 square metres = 100 000 000 blades of grass

10 000 square metres = 1 000 000 000 blades of grass

There are about 1 billion blades of grass in the field.



Solving Problems That Involve Large Numbers

GOAL

Solve problems and check solutions by estimating.

You will need a calculator.

1. Calculate.

a) $753 \times 622 = \underline{468\ 366}$

b) $3042 \times 271 = \underline{824\ 382}$

2. Estimate. Show your work.

a) 512×984

For example, 512 is about 500, and 984 is about 1000.

$500 \times 1000 = 500\ 000$

b) 782×595

For example, 782 is about 800, and 595 is about 600.

$800 \times 6\ \text{hundreds} = 4800\ \text{hundreds, or } 480\ 000$

3. Ahmed takes 11 730 steps on an average day.

a) There are 365 days in a year. How many steps will Ahmed take in a year?

4 281 450

b) Estimate to check your answer. Show your work.

For example, 365 is close to 400, and 11 730 is close to 10 000.

$400 \times 1\ \text{ten thousand} = 400\ \text{ten thousands, or } 4\ 000\ 000$

At-Home Help

Here are two ways to estimate 273×925 :

- Round each number to the nearest hundred.
273 is about 300, and 925 is about 900.
 $300 \times 9\ \text{hundreds} = 2700\ \text{hundreds, or } 270\ 000$
- Round one or both numbers to a number that is easier to multiply.
925 is close to 1000.
 $273 \times 1000 = 273\ 000$



Renaming Numbers

GOAL

Use decimals to represent numbers greater than one million.

1. Fill in the blanks to estimate. Part a) is done for you.

a) 4 218 000 is about 4 . 2 million

b) 8 439 000 is about 8 . 4 million

c) 5 928 000 is about 5 . 9 million

2. Fill in the blanks to estimate.

a) 1 293 482 is about 1 . 3 million

b) 9 188 374 is about 9 . 2 million

c) 5 497 003 is about 5 . 5 million

d) 490 293 is about 0 . 5 million

3. Write each number in standard form.

a) 7.1 million = 7 100 000

c) 0.9 million = 900 000

b) 2.2 million = 2 200 000

d) 8.5 million = 8 500 000

4. Write each number in another form.

a) 2.001 million = 2001 thousands

b) 0.07 million = 70 thousands

5. Earth is about 150 million kilometres from the Sun. Write this distance in standard form.

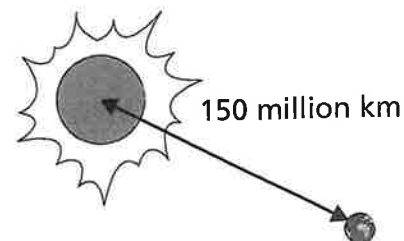
150 000 000 km

At-Home Help

You can represent numbers greater than 1 million using estimates with decimals.

For example,

- 1 237 928 is about 1.2 million or 1.24 million
- 7 381 290 is about 7.4 million or 7.38 million
- 4 973 472 is about 5.0 million or 4.97 million



Communicating about Large Numbers

GOAL

Explain your thinking when creating and solving a problem.

You will need a calculator.

1. a) How much money did the Grade 6 students at Westway Middle School raise?

282 students raised \$34 each.

$282 \times 34 = 9588$

They raised \$9588.

- b) About how many sacks of cornmeal will the money raised by the Grade 6 students buy at the usual price?

\$12 buys 1 sack. \$12 is close to \$10.

The students raised about \$9000.

$9000 \div 10 = 900$

The students' money will probably buy about

900 sacks of cornmeal.

2. a) Use the numbers in the newspaper article to write your own multiplication or division problem.

For example, how much money did the Grade 7 students raise?

- b) Write a solution to your problem. Use the Communication Checklist.

248 students raised \$32 each. $248 \times 32 = 7936$

Check: 248 is close to 250, and 32 is close to 30.

$250 \times 3 \text{ tens} = 750 \text{ tens or } 7500$, so my answer is

reasonable. The Grade 7 students raised \$7936.

At-Home Help

Communication Checklist

- ✓ Did you show all your steps?
- ✓ Did you show the right amount of detail?
- ✓ Did you check your answers?

Students collect money for food crisis in Africa

This December, students at Westway Middle School collected money to send to countries in Africa, including Zimbabwe and Malawi. The money will be used to buy cornmeal for people to eat.

- 282 Grade 6 students raised an average of \$34 each.
- 248 Grade 7 students raised an average of \$32 each.

Usually \$12 Canadian will buy one 10 kg sack of cornmeal. However, prices have recently inflated to \$200 per sack.

Representing Millionths

GOAL

Use a place value chart to represent decimals less than thousandths.

Use the place value chart at the bottom of this page to help you.

1. Write each number as a decimal.

a) 3 parts out of 1000 things = 0.003

b) 9 parts out of 100 000 things = 0.000 09

2. Write each number the way you would read it.

a) 0.0008 = 8 ten-thousandths

b) 0.000 002 = 2 millionths

3. Write each number in standard form.

a) 49 millionths = 0.000 049

b) 127 ten-thousandths = 0.0127

4. A factory emits 2 parts pollutant out of every 100 000 parts gas. Write this number as a decimal.

0.000 02

At-Home Help

One part out of 10 things is **one tenth** or **0.1**.

One part out of 100 things is **one hundredth** or **0.01**.

One part out of 1000 things is **one thousandth** or **0.001**.

One part out of 10 000 things is **one ten-thousandth** or **0.0001**.

One part out of 100 000 things is **one hundred-thousandth** or **0.00001**.

One part out of 1 000 000 things is **one millionth** or **0.000001**.



Ones	Tenths	Hundredths	Thousandths	Ten-thousandths	Hundred-thousandths	Millionths

Exploring Decimals to Millionths

GOAL

Estimate millionths using a place value chart.

1. An Australian dollar is worth \$0.893 965 in Canadian dollars.

a) Write this value in the place value chart.

Ones	Tenths	Hundredths	Thousandths	Ten-thousandths	Hundred-thousandths	Millionths
0	8	9	3	9	6	5



b) How much are 10 Australian dollars worth in Canadian dollars?

8.939 65 Canadian dollars

c) How much are 100 Australian dollars worth in Canadian dollars?

89.3965 Canadian dollars

2. A Mexican peso is worth \$0.092 898 in Canadian dollars.

a) Write this value in the place value chart.

Ones	Tenths	Hundredths	Thousandths	Ten-thousandths	Hundred-thousandths	Millionths
0	0	9	2	8	9	8



b) About how much are 20 Mexican pesos worth in Canadian dollars?
Show your work.

For example, 0.092 898 is close to one tenth, or 0.1.

I will multiply this number by 10 and then by 2.

$0.1 \times 10 = 1$ and $1 \times 2 = 2$

So 20 Mexican pesos are worth about 2 Canadian dollars.

Using Decimals

GOAL

Use a place value chart to represent and compare decimals less than one thousandth.

1. Write each number in millionths.

a) $0.000\ 003 = \underline{\quad 3 \quad}$ millionths

b) $0.000\ 05 = \underline{\quad 50 \quad}$ millionths

c) $0.0007 = \underline{\quad 700 \quad}$ millionths

2. Write each number in hundred-thousandths.

a) $0.000\ 06 = \underline{\quad 6 \quad}$ hundred-thousandths

b) $0.000\ 12 = \underline{\quad 12 \quad}$ hundred-thousandths

c) $0.009 = \underline{\quad 900 \quad}$ hundred-thousandths

3. a) Write these decimal numbers in the place value chart.

0.000 053 0.000 008 0.000 029

Ones	Tenths	Hundredths	Thousandths	Ten-thousandths	Hundred-thousandths	Millionths
0	0	0	0	0	5	3
0	0	0	0	0	0	8
0	0	0	0	0	2	9

b) Write the numbers in order from greatest to least.

0.000 053, 0.000 029, 0.000 008

4. Write these decimals in order from least to greatest.

0.000030 0.000012 0.0001 0.000008 0.000027

0.000 008, 0.000 012, 0.000 027, 0.000 030, 0.0001

At-Home Help

Here are two ways to compare decimals less than one thousandth:

- Write the decimals in a place value chart. Then compare the value of the digits.
- Rewrite the decimals as you would say them. For example, 0.000 02 becomes 20 millionths, and 0.000 012 becomes 12 millionths. Then compare the values.

Chapter 2

Test Yourself

Circle the correct answer.

- Write 3 million 517 thousand in standard form.
A. 3517 B. 315 700 C. 317 500 **D. 3 517 000**
- Write 82 million 115 thousand 935 in standard form.
A. 82 115 935 B. 81 159 352 C. 82 935 115 D. 820 115 935
- Which number is the best estimate for 298×303 ?
A. 9000 B. 900 **C. 90 000** D. 900 000
- Which number is the best estimate for 711×395 ?
A. 2800 **B. 280 000** C. 28 000 D. 2 800 000
- Which number can be renamed 0.5 million?
A. 512 032 B. 4 923 594 C. 599 441 D. 5 120 340
- Which number is the best estimate for 3 629 482?
A. 3.9 million B. 3.2 million **C. 3.63 million** D. 3.62 million
- Which number shows 29 ten-thousandths in standard form?
A. 0.000 29 **B. 0.0029** C. 0.000 029 D. 0.029
- Which number shows 83 hundred-thousandths in standard form?
A. 0.000 83 B. 0.0083 C. 0.000 083 D. 0.083
- Which number shows 630 millionths in standard form?
A. 0.000063 **B. 0.000630** C. 0.630 D. 0.063
- Which number is the greatest?
A. 0.000050 B. 0.000009 **C. 0.000 210** D. 0.000088