

Exploring Greater Numbers

Goal

Compare numbers to one million.

A bumblebee can flap its wings about 200 times per second.

A dragonfly can flap its wings about 38 times per second.

1. Predict how many times a dragonfly flaps its wings in 1000 s.

2. About how many hours would it take for a dragonfly to flap its wings 1 000 000 times? Show your work.

3. a) About how many times can a bumblebee flap its wings in 1000 min?

- b) How many 1000 thousands is your answer in part a)?

At-Home Help

A **million** is a number that is 1000 thousands.
1 000 000

To estimate an answer to a problem, use numbers that are close to the values in the problem that are easier to work with.

For example, if a problem involves comparing times in weeks to years, use about 50 weeks in a year.

Reading and Writing Numbers

Goal

Read, write, and describe numbers greater than 100 000.

1. Write each number in standard and expanded form.

a)

Millions			Thousands			Ones		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
			● ●		● ●		●	

b)

Millions			Thousands			Ones		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
		●	● ●	● ●	● ● ● ●		● ●	● ● ● ● ● ● ● ●

2. Write each number as a numeral in standard form.

a) four hundred forty thousand twenty-six

b) twenty-two thousand eight

c) seven hundred thirty-one thousand three hundred five

3. Write the words for each number.

a) 304 000 _____

b) 21 000 _____

c) 12 600 _____

4. The sun in our solar system takes about 240 million years to orbit once around the centre of the Milky Way galaxy. Write that number of years in standard form.

At-Home Help

To read and write large numbers, we group the digits in periods. A **period** is a group of hundreds, tens, and ones.

For example, the place value chart below shows three periods.

third period			second period			first period		
Millions			Thousands			Ones		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
			● ●	● ● ● ●	● ● ● ●	● ● ● ●		

The number modelled above is 384 400 in standard form.

In expanded form, the number is $300\ 000 + 80\ 000 + 4000 + 400$.

The number in words is three hundred eighty-four thousand four hundred.

Comparing and Ordering Numbers

Goal Compare and order numbers to 1 000 000.

1. Compare each pair of numbers.

Use an inequality sign.

a) 602 589 640 077

b) 314 806 409 116

c) 584 192 521 009

2. Order the numbers in Question 1 from least to greatest.

3. List three numbers between 216 534 and 242 189.

4. a) The number 5 8206 is between 96872 and 512093. The two missing digits are different. What might they be?

- b) Order the numbers from part a) from least to greatest.

At-Home Help

When comparing and ordering numbers to 1 000 000, compare the digits in this order:

- hundred thousands
- ten thousands
- one thousands
- hundreds
- tens
- ones

You can also compare and order numbers by their positions on a number line.

Inequality signs $<$ and $>$ show that one number is less than or greater than another.

For example, $8 > 5$ is read "eight is greater than five." $5 < 8$ is read "five is less than eight."

Renaming Numbers

Goal

Rename numbers using place value concepts.

1. Complete each statement.
 - a) 4 625 239 is about _____ millions.
 - b) 276 081 is about _____ millions.
 - c) 3 910 245 is about _____ thousands.

2. Irene takes pictures with her digital camera.
The file sizes of four of her pictures are:
3.2 MB 720 kB 21 500 bytes 408 350 bytes
 - a) Write the first two file sizes as a number of bytes.

 - b) Estimate each file size, except for the first one, as millions of bytes or megabytes.

 - c) Which photo uses the most bytes?

3. Write each number in another form.
 - a) 1.9 million = _____ ones
 - b) 4.6 million = _____ thousands
 - c) 0.28 million = _____ hundreds

At-Home Help

When a number is used in a measurement, the way the number is written depends on the size of the unit.

For example, 233 848 bytes can be written as about 0.2 MB.

1 MB is the same as 1 000 000 bytes.

1 kB is the same as 1000 bytes.

1.4 kB can be written as 1400 bytes.

3.13 MB can be written as 3 130 000 bytes.

To compare measurements, compare values using the same units.

For example, if you use bytes

3 130 000 bytes > 233 848 bytes
> 1400 bytes

Rounding Decimals

Goal

Interpret rounded decimals and round decimals to the nearest tenth or hundredth.

1. Round each decimal to the nearest hundredth.

a) 0.526

c) 0.078

b) 0.896

d) 3.006

2. Round each decimal to the nearest tenth.

a) 0.72

c) 2.462

b) 1.073

d) 0.98

3. Which numbers below round to the same hundredth?

2.417 2.423 2.024 2.400

4. Name a decimal thousandth that could be rounded as described below.

a) up to 0.35 or down to 0.3

b) down to 2.12 or down to 2.1

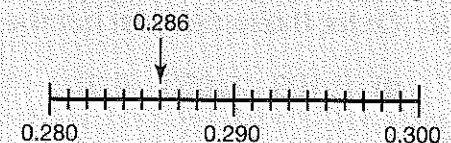
5. Maya cut strips of fabric to make a quilted design. Each piece measured 0.365 m. If she had measured to the nearest centimetre instead, what might the length of fabric be?

At-Home Help

Decimal numbers can be rounded to the nearest tenth or hundredth.

For example, 0.286 rounds up to 0.29 (decimal hundredth) and 0.3 (decimal tenth).

A number line helps with rounding.



Comparing and Ordering Decimals

Goal Compare and order decimals to thousandths.

1. Which decimal is greater?

a) 2.03 or 2.4 c) 0.526 or 1.004

b) 5.7 or 3.99 d) 0.403 or 0.067

2. Order these decimal numbers from least to greatest.

a) 2.108 0.053 0.872 1.096

b) 2.085 2.008 3.004 2.805

3. Which measurement is greater?

a) 0.087 kg or 0.800 kg

b) 4.312 km or 3567 m

c) 450 g or 1.088 kg

4. List the numbers of the form $\square.\square\square$ between 1.3 and 1.5 that are greater than 140 hundredths.

At-Home Help

To compare and order decimal numbers to thousandths, compare the digits in this order:

- ones
- tenths
- hundredths
- thousandths

You can also compare and order decimals by their positions on a number line.