

Understand Place Value

Think It Through

What exactly does place value mean?



Place value is the value of a digit, or amount the digit is worth, based on its position in a number. You can use a place-value chart to help understand the value of each digit. The chart below shows the number 27,138.

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
	2	7	1	3	8

The 2 has a value of 2 ten-thousands, or 20,000.

The 7 has a value of 7 thousands, or 7,000.

The 1 has a value of 1 hundred, or 100.

The 3 has a value of 3 tens, or 30.

The 8 has a value of 8 ones, or 8.

Think How are place values related to one another?

Our number system is based on a pattern of tens. A digit in any place has 10 times the value it would have in the place to its right.

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
		3	3	3	3

The **3** in the tens place has a value of **30**.

That is 10 times the value of the 3 in the ones place. $30 = 10 \times 3$

The **3** in the hundreds place has a value of **300**.

That is 10 times the value of the 3 in the tens place. $300 = 10 \times 30$

The **3** in the thousands place has a value of **3,000**.

That is 10 times the value of the 3 in the hundreds place. $3,000 = 10 \times 300$



Circle the digit in the table that has a value of 30.

Think How can a place-value chart help you think about numbers?

The digits in numbers are in groups of three places called **periods**.
Commas are used to separate the periods.

To read numbers with four or more digits you need to know
how to read three-digit numbers and the names of the periods.
How do you read 467,882?



A place-value chart can
help you read and write
numbers.

Thousands Period			Ones Period		
Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
4	6	7	8	8	2

To read 467,882, start at the left and read to the comma. Then say the name
of the period.

four hundred sixty-seven thousand

Then read the three-digit number in the ones period. Do not say the name of the
ones period.

eight hundred eighty-two

Here is the number in **word form**.

four hundred sixty-seven thousand, eight hundred eighty-two

Standard form is the way you usually see a number written, using digits.

467,882

Expanded form is a way to write a number to show the place value of each digit.

$400,000 + 60,000 + 7,000 + 800 + 80 + 2$

► Reflect

1 Compare the values of the two 8s in the number 467,882.

Think About **Place Value**

Let's Explore the Idea Use the place-value chart to help you think about the value of each digit.



Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
	2	5	0	4	9

- 2** Write the number in expanded form.

- 3** Write the number in word form.

- 4** What digit is in the thousands place? _____

- 5** What is the value of the digit in the thousands place? _____

- 6** What would be the value of the digit from problem 4 if it were in the hundreds place? _____

Now try these two problems.

- 7** Find the next two numbers in the following pattern.

600,000 60,000 6,000 600 _____

- 8** Write the numbers from the pattern in problem 7 in the following place-value chart. The first one is done for you.

Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
6	0	0	0	0	0



Let's Talk About It

Solve the problems below as a group.



- 9** Look at the numbers in problem 8 on the previous page. What is the same about all of the numbers?

What is different about all of the numbers?

- 10** Complete the following to show different ways you can make 2,079.

2,079 = _____ thousands + _____ hundreds + _____ tens + _____ ones

2,079 = _____ hundreds + _____ tens + _____ ones

2,079 = _____ tens + _____ ones

2,079 = _____ ones

- 11** Solve the following base-ten riddles. Show your work.

- I have 18 ones, 15 hundreds, 15 tens, and 8 thousands.

What number am I? _____

- I have 14 tens, 6 hundreds, 7 ten-thousands, and 15 ones.

What number am I? _____

► Try It Another Way

- 12** What number is ten thousand less than 842,719? _____

- 13** What number is one thousand more than 700,012? _____

Talk through these problems as a class, then write your answers below.

- 14 Explain** Emma wrote thirty-six thousand, forty-two as 3,642. Explain what she did wrong. Then write the number correctly.

- 15 Demonstrate** Suppose you only have hundreds, tens, and ones blocks. What are two different ways you could make the number 1,718?

- 16 Apply** Place value is important to know when you are talking about prices. What items have prices that are in the hundreds of dollars? thousands of dollars? tens of thousands of dollars? Think about the prices of items with place values in the hundreds, thousands, and ten-thousands. Give at least two examples of each.

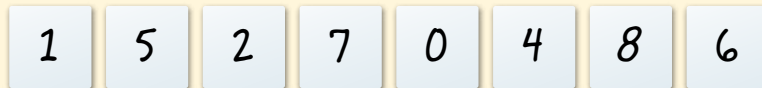
Hundreds Place: _____

Thousands Place: _____

Ten-Thousands Place: _____

17 Put It Together Use what you have learned to complete this task.

You are playing a game that includes the following cards.



Part A Choose six cards. Circle the cards you choose.

- i** Make the greatest number possible using each of the six cards only once. Write your answer in standard form and in expanded form.

Standard Form: _____

Expanded Form: _____

- ii** Make the least number possible using the same six cards. If the 0 card is one of your cards, do not use it as the first digit in your number. Write your answer in standard form and in expanded form.

Standard Form: _____

Expanded Form: _____

Part B Look at the standard form of your answers to Part A. Circle a digit that you used in both numbers. Did the value of the digit change between the two numbers? Explain why or why not.
