



**In Grade 6, you learned how to . . .**

- find unit rates and use them to solve problems.
- use proportional reasoning to solve problems involving ratios and rates.
- represent relationships as tables, graphs, and equations.

**Now, let's get ready for Module 1!**

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## Module 1

# Proportional Relationships

**In this module, you will learn how to . . .**

- decide whether two quantities have a proportional relationship.
- represent proportional relationships using tables, graphs, and equations.
- find unit rates and solve rate problems.



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## Lesson 1.1

## PROBLEM SOLVING

# Understand Place-Value Relationships

## Learning Goal

I can use a place-value chart to compare the values of different digits and justify the comparisons.

Rate yourself on this learning goal:

☐ I don't understand.    ☐ I need more practice.    ☐ I've got it.



## Spark Your Learning

Some museums keep collections of insect specimens as a historical record. Experts keep track of inventory, inspect specimen cases for damage, and check that labels are set correctly. How can you show the number of beetles in the museum insect inventory?

Show your thinking.

### Lesson Tools



### Museum Insect Inventory

Insect	Number
beetles	1,240
wasps	19,725
butterflies	11,100

### Turn & Talk

Can you show the number of beetles in a different way? How do the different ways compare?

Task 1

PROBLEM SOLVING

**PS Construct Arguments:** The museum has 11,100 butterfly specimens. Describe the relationship between the values of the digits in the thousands place and the hundreds place in 11,100.



Blue Mountain Swallowtail butterfly

Represent and describe ten thousands, thousands, hundreds, tens, and ones.

- A. Justify:** Why did you use each representation?
- B.** What do you notice about the size of each representation?

**C.** Describe the relationship between the values of the digits in the thousands place and hundreds place in 11,100.

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Name \_\_\_\_\_

Task 2

**PS Attend to Precision:** As many as 136,080 lady beetles were used as an alternative to pesticides in the community garden. This means no harsh chemicals were used to grow the food! What is the value of each digit in the number 136,080?

**A.** Enter the digits for 136,080 in the top row of the place-value chart.

**B.** What is the place-value position of the digit 6?

PERIOD			PERIOD			PERIOD		
MILLIONS			THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
			1 hundred thousand	ten thousands		hundreds		
				30,000			80	

- A** Ones
- B** Hundreds
- C** Thousands
- D** Ten Thousands

**C.** How can you find the value of the digit 1?

**A. Show Another Way:** Enter other ways to find the value of the digits in the place-value chart.

**E.** What do you notice about the value of each place in the place-value chart?


**Vocabulary**

**Place value** describes the value of a digit in a number. A place-value chart can help you understand the place-value position. Each group of three digits in a multi-digit number, separated by commas or spaces, is called a **period**. Each period has hundreds, tens, and ones.






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# Task 1

## PROBLEM SOLVING

 **PS** **Use a Problem-Solving Model:** Makani is making kites in the shape of a parallelogram. He wants to make 10 kites. Makani is trying to figure out how much fabric he needs to construct the kites. Each parallelogram has a height of 2.5 feet and a base of 3 feet.


[NEW Photo or Art:  
Parallelogram shaped kite]

- A.  **PS** **Analyze:** What information do you have? What are you trying to figure out?
- B.  **PS** **Plan:** Plan How can you use the information you have to solve this problem?
- C.  **PS** **Solve:** Use your plan to solve this problem. Show your work.
- D.  **PS** **Justify:** Explain why your answer in Part C makes sense.
- E.  **PS** **Evaluate Process:** How effective was your strategy to solve this problem? What might you do differently?



Lorem ipsum dolor sit amet, consectetur adipiscing elit. Praesent justo arcu, aliquet consectetur adipiscing elit?

Task 2 continued

A.  Needs an ELPS question/interaction for students. TK To et volupta ssequatibus sunt estrum nis.


Turn & Talk

How can you use the place-value chart to compare the values of the digits 3 and 6?

Connect to Prior Learning

Task 3

PROBLEM SOLVING

 **Use Structure:** Yellow jacket wasps live in colonies that can contain up to 15,000 wasps, while bee colonies can have as many as 50,000 bees. How does the value of the digit 5 in 50,000 compare with the value of the digit 5 in 15,000?



Use the place-value chart to compare.

A. Show 15,000. The value of the digit 5 is \_\_\_\_\_.

B. Show 50,000. The value of the digit 5 is \_\_\_\_\_.

C. Which digit 5 has the greater value? The digit 5 in \_\_\_\_\_.

D. The value of the digit 5 in 50,000 is \_\_\_\_\_ times the value of the digit 5 in 15,000.

THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones

THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones

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Review Spark Your Learning

How does a place-value chart to help you solve the problem?

Turn & Talk

What is another way you can compare the digits without using a place-value chart?

Name \_\_\_\_\_

Quick Check

- 1. What is the value of the digit 9 in the number 396,002?
- 2. The value of the digit 9 is \_\_\_\_\_.
- 3. How does the value of the digit 4 in 274,513 compare to the
- 4. value of the digit 4 in 47,329? \_\_\_\_\_
- 5. The digit 4 in \_\_\_\_\_ has the greater value.
- 6. There are over 2,000 different species of jellyfish. The largest species have tentacles 200 feet long. How does the value of the digit 2 in 2,000 compare with the value of the digit 2 in 200?
- 7. The value of the digit 2 in 2,000 is \_\_\_\_\_ times the value of the digit 2 in 200.

Learning Goal

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Rate yourself on this learning goal:


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Pause for your next steps.

# Practice on Your Own


1. In 2009, experts were called to a Baltimore wastewater treatment plant to remove orb weaving spider webbing. In the web samples that were removed, there were 31,194 spiders. Show the value of the digit 3 in two different ways.
2.  **Use Structure:** The praying mantis collection at a museum includes 13,000 specimens, while another museum has a collection of 300 specimens. How many times as great is the value of the digit 3 in 13,000 than the value of the digit 3 in 300?  
  
\_\_\_\_\_ times as great
3. A beekeeper studies a colony of honeybees that has one queen bee, about 250 male drones, and about 37,250 female worker bees. Show the value of the digit 7 in 37,250 in two different ways.

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Name \_\_\_\_\_

4. One day, a cricket chirps 115,200 times. The next day it chirps 11,020 times. How many times as great is the value of the digit 2 in 115,200 than the value of the digit 2 in 11,020? How do you know?  
Complete the sentence.  
  
The value of the digit 2 in 115,200 is \_\_\_\_\_ times as great as the value of the digit 2 in 11,020 because the digit 2 in \_\_\_\_\_ is one place to the right of the the digit 2 in \_\_\_\_\_.
-  **Attend to Precision:** Compare the values of the underlined digits. Then complete the sentence.  
  
5. 26,451 and 2,385  
The value of the digit 2 in the number \_\_\_\_\_ is \_\_\_\_\_ times the value of the digit 2 in the number \_\_\_\_\_.
6. 3,000 and 30,000  
The value of the digit 3 in the number \_\_\_\_\_ is \_\_\_\_\_ times the value of the digit 3 in the number \_\_\_\_\_.

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7.  **PS Attend to Precision:** Enter the digits for 23,518 in the top row of the place-value chart. Then complete the chart to find the value of each digit.

THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones
		3 thousands			
			500		

Give the digit in its place-value position.

8. 5,619

\_\_\_\_\_ thousands

\_\_\_\_\_ hundreds

\_\_\_\_\_ tens

\_\_\_\_\_ ones

9. 605,981

\_\_\_\_\_ hundred thousands

\_\_\_\_\_ ten thousands

\_\_\_\_\_ thousands

\_\_\_\_\_ hundreds

\_\_\_\_\_ tens

\_\_\_\_\_ ones



Name \_\_\_\_\_

# Module Review

## Vocabulary


Use vocabulary words to complete the sentences.

1. The \_\_\_\_\_ of a number uses the digits 0–9, with each digit having a place value.
2. Three hundred sixty-two is an example of the \_\_\_\_\_.
3. \_\_\_\_\_ of a number.
4. A(n) \_\_\_\_\_ is a number that is close to the exact amount.
5. A number that is added to another number is called a(n) \_\_\_\_\_.
6. \_\_\_\_\_.

### Vocabulary

addend  
estimate  
period  
standard form  
word form

## Concepts and Skills

7.  **Use Structure:** Select all the ways to regroup and rename 4,200.  

<input type="checkbox"/> A 42 hundreds	<input type="checkbox"/> C 4,200 ones	<input type="checkbox"/> D 420 ones
<input type="checkbox"/> B 42 thousands	<input type="checkbox"/> D 420 tens	<input type="checkbox"/> D 420 thousands
8. The value of the digit 2 in 321,705 is \_\_\_\_\_ times the value of the digit 2 in 32,571.
9. Which is the correct value that completes the sentence?  

<input type="checkbox"/> A 10	<input type="checkbox"/> B 100	<input type="checkbox"/> C 1,000	<input type="checkbox"/> D 10,000
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10. What is  $200,000 + 80,000 + 500 + 70 + 1$  written in standard form?
11. In the United States, about 620,000 dogs that enter animal shelters as strays are returned to their owners. Which numbers round to 620,000 when rounded to the nearest ten thousand?  
Select all that apply.
- ☐ A 619,000

☐ B 605,000

☐ C 621,000

☐ D 625,000

☐ E 614,000
12. Which comparisons are true?  
Select all that apply.
- ☐ A  $37,940 > 37,939$

☐ B  $473,248 = 473,248$

☐ C  $16,105 = 16,103$

☐ D  $801,269 > 801,296$

☐ E  $37,340 < 37,890$
13. Which shows the numbers ordered correctly from least to greatest?  
Select all that apply.
- ☐ A 32,245; 32,452; 32,425

☐ B 304,561; 305,561; 306,561

☐ C 817,902; 871,029; 871,092

☐ D 216,135; 261,532; 216,153

☐ E 86,109; 96,869; 169,715

Name \_\_\_\_\_

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