

## KEY CONCEPT OVERVIEW

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Lessons 1 through 4 focus on understanding **place value** and representing numbers from millions to thousandths on a **place value chart**.

You can expect to see homework that asks your child to do the following:

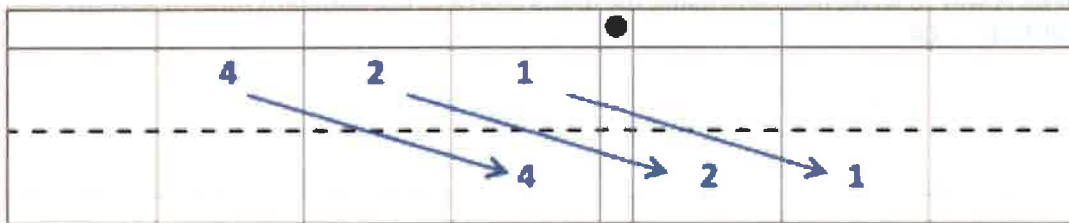
- Multiply and divide by 10, 100, and 1,000 using the place value chart (as shown in the sample problem below).
- Write numbers in **exponential form** (e.g.,  $10,000 = 10^4$ ), and write exponential numbers in **standard form** (e.g.,  $9 \times 10^3 = 9,000$ ).
- Use knowledge of measurements (e.g.,  $3 \text{ m} = 300 \text{ cm}$ ) and exponential form (e.g.,  $3 \times 10^2 = 300$ ) to solve problems.

## SAMPLE PROBLEM (From Lessons 1–4)

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Use the place value chart and arrows to show how the value of each digit in the number 421 changes when it is divided by 100.

a.  $421 \div 100 = 4.21$



b. Write 100 in exponential form.

$$100 = 10^2$$

c. Convert 421 millimeters to meters, and write an equation with an exponent.

$$421 \text{ mm} = 0.421 \text{ m}$$

$$421 \div 10^3 = 0.421$$

LEARN MORE by viewing a video about using place value disks to solve multiplication problems. Visit [eurmath.link/multiplication-pvdisks](http://eurmath.link/multiplication-pvdisks).

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at [GreatMinds.org](http://GreatMinds.org).

## HOW YOU CAN HELP AT HOME

- Practice drawing and labeling a place value chart (to the thousandths). Take turns drawing disks on the chart. Challenge each other to say the name of the number that was drawn.
- Practice metric conversions with your child in the kitchen. For example, measure water, juice, or milk in milliliters and liters (1 L = 1,000 mL). Measure rice, beans, oatmeal, or sugar in grams and kilograms (1 kg = 1,000 g). Measure the kitchen counter, refrigerator, or walls in millimeters, centimeters, and meters (1 m = 100 cm and 1 m = 1,000 mm).
- Play the “Exponent” dice game with your child.
  1. Your child rolls a die to represent an exponent. The base number is 10.
  2. You ask your child to say the number in standard form.

For example, your child rolls a 4. You ask, “Say  $10^4$  in standard form.” He says, “10,000.”

## TERMS

**Exponential form:** A numeric form involving exponents (e.g., the exponential form of 1,000 is  $10^3$ ).

**Place value:** The value of a given digit based on its position in a number (e.g., the place value of the digit 2 in 235 is 200 (2 hundreds)).

**Standard form:** A way to write numbers using the digits 0–9 (e.g., the standard form of seventy-two and forty-eight thousandths is 72.048).

## MODELS

### Place Value Chart

1,000,000	100,000	10,000	1,000	100	10	1	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths	Thousandths
							.			

## KEY CONCEPT OVERVIEW

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In Lessons 5 and 6, students focus on writing numbers in different forms to the thousandths place using decimals and fractions. Students also learn to compare decimals using the symbols for greater than ( $>$ ), less than ( $<$ ), or equal to ( $=$ ).

You can expect to see homework that asks your child to do the following:

- Represent the same number in different forms (as shown in the sample problem below).
- Compare numbers using symbols.

## SAMPLE PROBLEM (From Lesson 5)

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Represent 25.413 in standard form, word form, expanded form using decimals and fractions, unit form, and as a mixed number.

Standard form: **25.413**

Word form: ***Twenty-five and four hundred thirteen thousandths***

Expanded form using decimals:  $2 \times 10 + 5 \times 1 + 4 \times 0.1 + 1 \times 0.01 + 3 \times 0.001$

Expanded form using fractions:  $2 \times 10 + 5 \times 1 + 4 \times \frac{1}{10} + 1 \times \frac{1}{100} + 3 \times \frac{1}{1000}$

Unit form: ***2 tens 5 ones 4 tenths 1 hundredth 3 thousandths***

Mixed number:  $25 \frac{413}{1000}$

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at [GreatMinds.org](http://GreatMinds.org).

**HOW YOU CAN HELP AT HOME**

- Write a challenging number with three numbers to the right of the decimal, such as 1,769,432.158. Ask your child to say the number in unit form. “Say the number using place value units starting from the millions to the thousandths place.” (Answer: 1 million, 7 hundred-thousands, 6 ten-thousands, 9 thousands, 4 hundreds, 3 tens, 2 ones, 1 tenth, 5 hundredths, 8 thousandths.)
- Play the “Comparison” card game with your child.
  1. Take out the Jacks, Queens, Kings, Aces, and Jokers.
  2. Put the stack of remaining cards face down.
  3. You and your child will each flip one card.
  4. Name each card as tenths, and then compare them.
  5. The person with the larger number wins a point.

For example, you flip a 2, it represents 0.2. She flips a 7, it represents 0.7. Since  $0.2 < 0.7$ , she wins a point.

Note: Flip 1 card to compare tenths, flip 2 cards to compare hundredths, and flip 3 cards to compare thousandths.

- Ask your child about place value units while looking at a multi-digit number. He can attempt to do this without a visual aid for an extra challenge. “What unit is to the left of the ones place on the place value chart? What unit is to the right of the tenths place on the place value chart?”

**TERMS**

**Expanded form using decimals:** A way to write a number by adding the value of its digits using decimals (e.g.,  $2 \times 100 + 5 \times 10 + 7 \times 1 + 3 \times 0.1 + 4 \times 0.01 = 257.34$ ).

**Expanded form using fractions:** A way to write a number by adding the value of its digits using fractions (e.g.,  $2 \times 100 + 5 \times 10 + 7 \times 1 + 3 \times \frac{1}{10} + 4 \times \frac{1}{100} = 257.34$ ).

**MODELS**

**Place Value Chart**

1,000,000	100,000	10,000	1,000	100	10	1	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	.	Tenths	Hundredths	Thousandths
							.			

## KEY CONCEPT OVERVIEW

Lessons 7 and 8 focus on **rounding** numbers to the nearest hundred, ten, one, tenth, hundredth, and/or thousandth, and using rounding skills to make **estimates** when solving word problems.

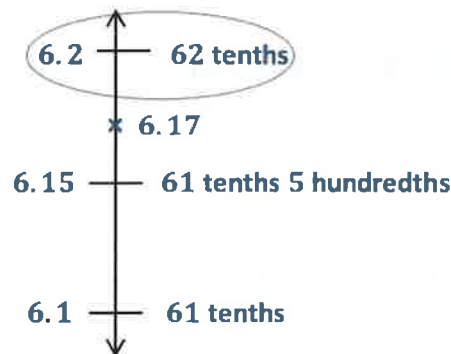
You can expect to see homework that asks your child to do the following:

- Rename a number in different unit forms using the place value chart (see sample problem below; 6.17 is the same as 6 ones 1 tenth 7 hundredths, 61 tenths 7 hundredths, or 617 hundredths).
- Round a number to a given place value with and without the use of a **vertical number line**.
- Solve word problems that involve estimating an answer.

## SAMPLE PROBLEM (From Lesson 7)

Fill in the table, and then round 6.17 to the nearest tenth. Label the number line to show your work. Circle the rounded number.

ones	tenths	hundredths
6	1	7
	61	7
		617



LEARN MORE by viewing a video about using the vertical number line to round. Visit [eurmath.link/rounding-vertical-numline](http://eurmath.link/rounding-vertical-numline).

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at [GreatMinds.org](http://GreatMinds.org).

## HOW YOU CAN HELP AT HOME

- Help your child practice finding the midpoint between two numbers. You can say two numbers and your child will have to say the midpoint between those two numbers. For example,

The midpoint between 0 and 100 is \_\_\_\_\_. (50)

The midpoint between 10 and 20 is \_\_\_\_\_. (15)

The midpoint between 0 and 10 is \_\_\_\_\_. (5)

The midpoint between 1 and 2 is \_\_\_\_\_. (1.5)

The midpoint between 0 and 1 is \_\_\_\_\_. (0.5)

The midpoint between 0 and 0.1 is \_\_\_\_\_. (0.05)

**HOW YOU CAN HELP AT HOME** *(continued)*

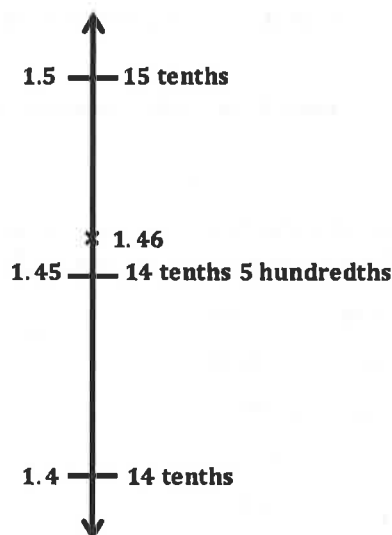
- Talk to your child about times that you use rounding, such as estimating how many grocery items you can buy with a \$50 bill or how many errands you can get done in 1 hour. Explain your thinking. Have a discussion about times when it makes sense to round and times when it is important to find an exact answer.
- Play the “Rounding” card game with your child.
  1. Take out the Jacks, Queens, Kings, Aces, and Jokers.
  2. Put the stack of remaining cards face down.
  3. Flip 2, 3, 4 or more cards and have your child practice rounding to different place value units.

For example, you flip a 5, 4, 3, and 6; it represents 5,436. Rounding 5,436 to the nearest ten is 5,440; rounding 5,436 to the nearest hundred is 5,400; and rounding 5,436 to the nearest thousand is 5,000.

**TERMS**

**Estimate:** Approximation of the value of a quantity or number. For example, the number 379 can be estimated to be 400.

**Round:** Approximate the value of a given number. For example, 8,261 rounded to the nearest hundred is 8,300.

**MODELS****Vertical Number Line**

## KEY CONCEPT OVERVIEW

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In Lessons 9 and 10, students add and subtract decimals and solve word problems.

You can expect to see homework that asks your child to do the following:

- Add and subtract decimals using the unit form and **standard algorithm** (as shown in the sample problem below).
- Solve word problems that involve decimals.

## SAMPLE PROBLEM (From Lesson 9)

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Solve, and write the sum in standard form. Then solve using the standard algorithm.

$$\begin{aligned} 8 \text{ ones } 27 \text{ hundredths} + 5 \text{ hundredths} &= \underline{8} \text{ ones } \underline{32} \text{ hundredths} \\ &= \underline{8} \text{ ones } \underline{3} \text{ tenths } \underline{2} \text{ hundredths} \\ &= \underline{8.32} \end{aligned}$$

$$\begin{array}{r} 8.27 \\ + 0.05 \\ \hline 8.32 \end{array}$$

LEARN MORE by viewing a video about using the place value disks to solve decimal subtraction problems. Visit [eurmath.link/decimal-subtraction-pvdisks](http://eurmath.link/decimal-subtraction-pvdisks).

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at [GreatMinds.org](http://GreatMinds.org).

**HOW YOU CAN HELP AT HOME**

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- Play a call and response game with your child while you are cooking or driving to and from school. You can say a number, and your child will say the number that's one more of a given unit than your number. For example, "What's one more tenth than 5 tenths? (6 tenths). What's one more thousandth than 0.052? (0.053)."
- Play the "Addition and Subtraction" card game with your child.
  1. Take out the Jacks, Queens, Kings, Aces, and Jokers.
  2. Put the stack of remaining cards face down.
  3. You and your child will each flip a set number of cards to build a decimal number.
  4. Ask your child to practice adding and/or subtracting with those two numbers.

For example, you flip an 8 and a 5; they represent 8.5. She flips a 6 and a 2; they represent 6.2.  $8.5 + 6.2 = 14.7$  and  $8.5 - 6.2 = 2.3$ .

Note: Flip two cards to practice adding and subtracting tenths; flip three cards to practice adding and subtracting hundredths, and flip four cards to practice adding and subtracting thousandths.

**TERMS**

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**Standard algorithm:** A standard step-by-step procedure to solve a particular type of problem. For example, the process of subtracting vertically with regrouping is a standard algorithm.



## KEY CONCEPT OVERVIEW

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In Lessons 11 and 12, students learn to multiply a decimal by a one-digit whole number by using an **area model** (as shown in the Sample Problem below).

You can expect to see homework that asks your child to do the following:

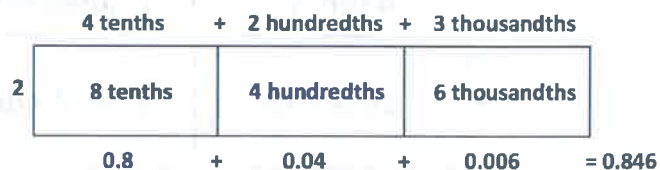
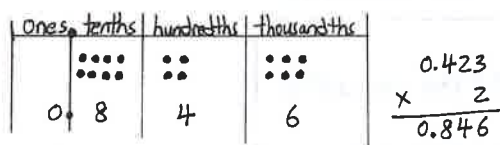
- Draw **place value disks** on a place value chart to solve multiplication problems.
- Draw area models to solve multiplication problems.
- Estimate and explain the reasonableness of the **product**.
- Solve word problems.

## SAMPLE PROBLEM (From Lesson 11)

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Solve by drawing disks on a place value chart and by using the area model.

$$2 \times 0.423 = \mathbf{0.846}$$



Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at [GreatMinds.org](http://GreatMinds.org).

## HOW YOU CAN HELP AT HOME

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- Practice basic multiplication facts by rolling two dice and multiplying the numbers that were rolled.
- Review rounding with your child. Give your child a number, and have him round to the nearest one ( $2.649 \approx 3$ ), the nearest tenth ( $2.649 \approx 2.6$ ), and the nearest hundredth ( $2.649 \approx 2.65$ ).

**TERMS**

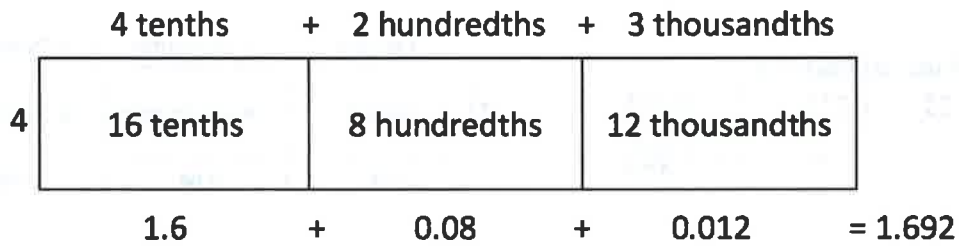
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**Product:** The number resulting from the multiplication of two or more numbers. For example, in the multiplication problem  $4 \times 0.2 = 0.8$ , the number 0.8 is the product.

**MODELS**

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**Area Model**



**Place Value Disks**



## KEY CONCEPT OVERVIEW

In Lessons 13 through 16, students divide decimal numbers by one-digit whole numbers.

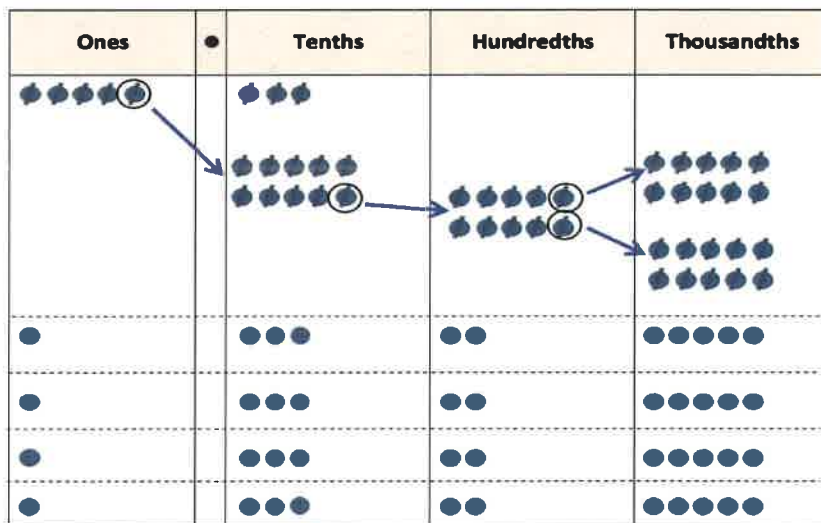
You can expect to see homework that asks your child to do the following:

- Solve division problems by using place value unit language (e.g.,  $0.42 \div 7 = 42 \text{ hundredths} \div 7 = 6 \text{ hundredths} = 0.06$ ).
- Divide decimals by drawing place value disks on the place value chart (as shown in the Sample Problem below).
- Divide decimals to the thousandths without leaving a remainder ( $6.372 \div 6 = 1.062$ ).
- Solve word problems.

## SAMPLE PROBLEM (From Lesson 15)

Draw place value disks on the place value chart to solve. Show each step in the standard algorithm.

$$5.3 \div 4 = 1.325$$



$$\begin{array}{r}
 1.325 \\
 4 \overline{) 5.300} \\
 \underline{- 4} \phantom{00} \\
 13 \phantom{00} \\
 \underline{- 12} \phantom{00} \\
 10 \phantom{00} \\
 \underline{- 8} \phantom{00} \\
 20 \phantom{00} \\
 \underline{- 20} \phantom{00} \\
 0
 \end{array}$$

Additional sample problems with detailed answer steps are found in the *Eureka Math Homework Helpers* books. Learn more at [GreatMinds.org](http://GreatMinds.org).

**HOW YOU CAN HELP AT HOME**

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- Practice and review basic division facts with your child.
- Challenge your child (and the rest of the family!) to division contests. You say a number from 1 to 10, and your child will say division sentences, using your number as the divisor. For example, you say 9, and she will say  $90 \div 9 = 10$ ,  $81 \div 9 = 9$ ,  $72 \div 9 = 8$ ,  $63 \div 9 = 7$ ,  $54 \div 9 = 6$ ,  $45 \div 9 = 5$ ,  $36 \div 9 = 4$ ,  $27 \div 9 = 3$ ,  $18 \div 9 = 2$ ,  $9 \div 9 = 1$ ,  $0 \div 9 = 0$ ). Take turns saying the numbers. First you give a number, then your child gives a number. Help each other to stay on track, and keep track of time to celebrate improvement.
- Practice finding the **quotient** with your child. You write the division sentence, and your child will say the division sentence, including the answer, in unit form. For example,  
 $14 \div 2 = 14 \text{ ones} \div 2 = 7 \text{ ones}$   
 $1.4 \div 2 = 14 \text{ tenths} \div 2 = 7 \text{ tenths}$   
 $0.14 \div 2 = 14 \text{ hundredths} \div 2 = 7 \text{ hundredths}$

**TERMS**

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**Quotient:** The number resulting from the division of two numbers. For example, in the division problem  $5.4 \div 6 = 0.9$ , the number 0.9 is the quotient.