

# **6th GRADE ACCELERATED MATH**

## **Unit 1** **Number Systems**

**Name** \_\_\_\_\_



Name \_\_\_\_\_

Date \_\_\_\_\_

Time \_\_\_\_\_

**STUDY LINK**  
**2.1**

# Large Numbers



trillions			billions			millions			thousands			ones		
100,000,000,000,000	10,000,000,000,000	1,000,000,000,000	100,000,000,000	10,000,000,000	1,000,000,000	100,000,000	10,000,000	1,000,000	100,000	10,000	1,000	100	10	1

1. Write the digit in each place of the number 6,812,507,439.

- a. millions \_\_\_\_\_ b. hundred thousands \_\_\_\_\_ c. ten millions \_\_\_\_\_  
 d. billions \_\_\_\_\_ e. hundred millions \_\_\_\_\_ f. ten thousands \_\_\_\_\_

2. Write each of the following numbers in standard form.

- a. four hundred thirty thousand \_\_\_\_\_  
 b. ninety million, one hundred five thousand \_\_\_\_\_  
 c. one hundred seventy million, sixty-five \_\_\_\_\_  
 d. nine billion, five hundred million,  
two hundred forty-three thousand \_\_\_\_\_

3. Write each number in expanded form. **Example:**  $235 = (2 * 100) + (3 * 10) + (5 * 1)$

a. 321,000

\_\_\_\_\_

b. 7,300,000,000,000

\_\_\_\_\_

c. 2,510,709

\_\_\_\_\_

4. Use extended facts to complete the following.

a. 1 million = 1,000 \* \_\_\_\_\_

b. 1 billion = 1,000 \* \_\_\_\_\_

c. 1 trillion = 1,000 \* \_\_\_\_\_

1

2

3

Name \_\_\_\_\_

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**LESSON**  
**2-1**

## **Walking Away with a Billion Dollars**



Suppose you inherit one billion dollars. The bank pays you the entire amount of money in \$100 bills. About how much will your payment weigh in tons?

Use the information below to solve the problem.

- ◆ You can cover a sheet of paper with about six \$100 bills.
- ◆ There are 500 sheets in a ream of paper.
- ◆ There are 10 reams in 1 carton of paper.
- ◆ One ream of paper weighs about 5 pounds.
- ◆ One ton equals 2,000 pounds.

Show all your work. Write an explanation that is clear and easy to follow.

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Name \_\_\_\_\_

Date \_\_\_\_\_

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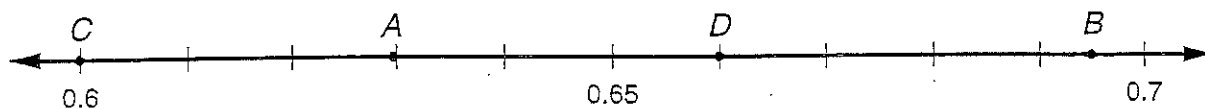
**STUDY LINK**  
**2•2****Writing Decimals** *continued*

hundreds	tens	ones	and	tenths	hundredths	thousandths	ten-thousandths	hundred-thousandths	millionths
100	10	1	.	0.1	0.01	0.001	0.0001	0.00001	0.000001

Write each of the following numbers in expanded notation.

**Example:**  $2.756 = (2 * 1) + (7 * 0.1) + (5 * 0.01) + (6 * 0.001)$ 

11. 0.013 \_\_\_\_\_

12. 109.3527 \_\_\_\_\_  
\_\_\_\_\_13. Using the digits 0, 3, 6, and 8, write the greatest decimal number possible.  
\_\_\_\_\_14. Using the digits 0, 3, 6, and 8, write the least decimal number possible.  
\_\_\_\_\_**Try This**

Name the point on the number line that represents each of the following numbers.

15. 0.66 \_\_\_\_\_ 16. 0.6299 \_\_\_\_\_ 17. 0.6 \_\_\_\_\_ 18. 0.695 \_\_\_\_\_

19. Refer to the number line above. Round 0.6299 to the nearest hundredth. \_\_\_\_\_

**Practice**20.  $0.01 + 0.006 + 0.0008 =$  \_\_\_\_\_ 21.  $0.7 + 0.04 + 0.0002 =$  \_\_\_\_\_22. \_\_\_\_\_  $= 40 + 5 + 0.009$  23. \_\_\_\_\_  $= 0.50 + 0.080 + 0.00010$

## Lesson 8: Adding and Subtracting Decimals

When you compute with decimals, the placement of the decimal point is very important. You must line up the decimal points and place values in the numbers you are adding or subtracting. You may need to use zeros as placeholders. Then add or subtract the two decimals as if they were whole numbers. Finally, move the decimal point straight down into the sum or difference.

### Example

What is the sum of  $3.13 + 2.392$ ?

Line up the numbers by their decimal points. You can add a zero as a placeholder at the end of 3.13. That way, both numbers have the same number of digits to the right of the decimal point. Then add.

$$\begin{array}{r} 1 \\ 3.130 \\ + 2.392 \\ \hline 5.522 \end{array}$$

$$3.13 + 2.392 = 5.522$$

### Example

The Mueller family checks two suitcases at the airport. The weight of the larger suitcase is 44.8 pounds. The weight of the lighter suitcase is 31.337 pounds. What is the combined weight of the two suitcases?

Line up the numbers by their decimal points. Add two zeroes to 44.8 as placeholders so both numbers have the same number of digits to the right of the decimal point. Then add.

$$\begin{array}{r} 1 \\ 44.800 \\ + 31.337 \\ \hline 76.137 \end{array}$$

The combined weight of the two checked suitcases is 76.137 pounds.





### Example

What is the difference of  $8.19 - 4.123$ ?

Line up the numbers by their decimal points. Add a zero as a placeholder at the end of 8.19. That way, both numbers have the same number of digits to the right of the decimal point. Then subtract.

$$\begin{array}{r} 810 \\ 8.1\cancel{9}\cancel{0} \\ - 4.123 \\ \hline 4.067 \end{array}$$

$$8.19 - 4.123 = 4.067$$

### Example

A quart of blueberries costs \$3.99. A quart of organic blueberries costs \$5.75. How much more expensive is the quart of organic blueberries?

Line up the numbers by their decimal points. Then subtract.

$$\begin{array}{r} 415 \\ 5.7\cancel{5} \\ - 3.99 \\ \hline 1.76 \end{array}$$

The organic blueberries are \$1.76 more expensive.

### Example

Rebecca is 1.6 meters tall. Her brother Jamaal is 1.485 meters tall. How much taller is Rebecca than her brother?

Line up the numbers by their decimal points. Add two zeroes as placeholders at the end of 1.6. That way, both numbers have the same number of digits to the right of the decimal point. Then subtract.

$$\begin{array}{r} 510 \\ 1.6\cancel{0}\cancel{0} \\ - 1.485 \\ \hline 0.115 \end{array}$$

Rebecca is 0.115 meter taller than her brother.

**Practice**

Directions: For questions 1 through 12, add.

1.  $\$3.12 + \$2.85 = \underline{\hspace{2cm}}$

2. 
$$\begin{array}{r} 18.08 \\ + 4.55 \\ \hline \end{array}$$

3.  $55.8 + 8.311 = \underline{\hspace{2cm}}$

4. 
$$\begin{array}{r} 9.48 \\ + 5.27 \\ \hline \end{array}$$

5.  $4.238 + 2.91 = \underline{\hspace{2cm}}$

6.  $23.4 + 18.09 = \underline{\hspace{2cm}}$

7. 
$$\begin{array}{r} 88.27 \\ + 55.74 \\ \hline \end{array}$$

8.  $0.8 + 10.339 = \underline{\hspace{2cm}}$

9. 
$$\begin{array}{r} 3.707 \\ + 2.484 \\ \hline \end{array}$$

10.  $6.65 + 4.4 = \underline{\hspace{2cm}}$

11. Corrine earned \$57.50 waiting tables, plus another \$45.45 in tips. How much did she earn altogether?  
 $\underline{\hspace{2cm}}$

12. Marco ran 2.67 miles to a county park. He then ran 1.5 miles in a loop around the park. How many miles did he run in total?  
 $\underline{\hspace{2cm}}$

# Lesson 8: Adding and Subtracting Decimals

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CCSS: 6.NS.3

Directions: For questions 13 through 22, subtract.

13.  $3.3 - 2.09 =$  \_\_\_\_\_

14. 
$$\begin{array}{r} 6.77 \\ - 3.49 \\ \hline \end{array}$$

15.  $\$10.00 - \$5.79 =$  \_\_\_\_\_

16. 
$$\begin{array}{r} 11.088 \\ - 5.505 \\ \hline \end{array}$$

17.  $4.009 - 3.1 =$  \_\_\_\_\_

18.  $18.21 - 9.6 =$  \_\_\_\_\_

19. 
$$\begin{array}{r} 48.056 \\ - 29.048 \\ \hline \end{array}$$

20.  $25 - 11.41 =$  \_\_\_\_\_

21. 
$$\begin{array}{r} 89.45 \\ - 77.54 \\ \hline \end{array}$$

22.  $0.03 - 0.004 =$  \_\_\_\_\_

23. A laptop computer weighs 6.4 pounds. A notebook computer weighs 3.75 pounds. How much heavier is the laptop than the notebook?
- \_\_\_\_\_

Explain how you found your answer.

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## Lesson 9: Multiplying and Dividing Decimals

Use the following steps to multiply decimals.

Step 1: Multiply decimals as if they were whole numbers.

Step 2: Count the number of digits to the right of the decimal point in each factor.

Step 3: Move the decimal point that many places to the left in the product.

### ► Example

Multiply:  $4.5 \times 245.76$

Multiply decimals as if they were whole numbers.

$$\begin{array}{r} 245.76 \\ \times 4.5 \\ \hline 122880 \\ + 983040 \\ \hline 1,105,920 \end{array}$$

Count the number of digits to the right of the decimal point in each factor.

$$\begin{array}{r} 245.76 \leftarrow 2 \text{ digits to the right of the original decimal point} \\ \times 4.5 \leftarrow 1 \text{ digit to the right of the original decimal point} \\ \hline \end{array}$$

Move the decimal point that many places to the left in the product.

$$\begin{array}{r} 245.76 \\ \times 4.5 \\ \hline 122880 \\ + 983040 \\ \hline 1105.920 \end{array}$$

← Move 3 digits to the left of the original decimal point.

Therefore,  $4.5 \times 245.76 = 1,105.92$ .

CCSS: 6.NS.3

Use the following steps to divide decimals.

Step 1: If the divisor is a decimal, move the decimal point to the right to make it a whole number. Move the decimal point in the dividend to the right the same number of places.

Step 2: Divide the decimals as if they were whole numbers.

Step 3: Move the decimal point from its new location in the dividend into the quotient.

### Example

Divide:  $8.4 \div 2.4$

Make the divisor a whole number by moving the decimal point to the right. Move the decimal point in the dividend to the right the same number of places.

$$2.4 \overline{)8.4} \rightarrow 24 \overline{)84.0}$$

Divide the decimals as if they were whole numbers.

$$\begin{array}{r} 35 \\ 24 \overline{)84.0} \\ \underline{-72} \phantom{0} \\ 120 \\ \underline{-120} \\ 0 \end{array}$$

Move the decimal point from its new location in the dividend into the quotient.

$$\begin{array}{r} 3.5 \\ 24 \overline{)84.0} \\ \underline{-72} \phantom{0} \\ 120 \\ \underline{-120} \\ 0 \end{array}$$

Therefore,  $8.4 \div 2.4 = 3.5$ .

10

# Practice

Directions: For questions 1 through 14, find the product.

1.  $5.1 \times 0.08 =$  \_\_\_\_\_

2.  $45.3 \times 2.34 =$  \_\_\_\_\_

3.  $3.7 \times 0.26 =$  \_\_\_\_\_

4.  $0.4 \times 0.9 =$  \_\_\_\_\_

5.  $12.98 \times 13 =$  \_\_\_\_\_

6.  $0.05 \times 1.2 =$  \_\_\_\_\_

7.  $6.09 \times 2.5 = ?$

A. 15.225

B. 15.286

C. 15.475

D. 15.485

8.  $5.2 \times 0.4 =$  \_\_\_\_\_

9.  $64.2 \times 3.4 =$  \_\_\_\_\_

10.  $7.91 \times 3.8 =$  \_\_\_\_\_

11.  $0.06 \times 8 =$  \_\_\_\_\_

12.  $0.62 \times 0.4 =$  \_\_\_\_\_

13.  $10.02 \times 0.1 =$  \_\_\_\_\_

14.  $13.2 \times 9.6 = ?$

A. 93.62

B. 104.62

C. 126.72

D. 128.80

Name \_\_\_\_\_

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**STUDY LINK**  
**2-3****Sports Records**

Solve.

1. The fastest winning time for the New York Marathon (Tesfay Jifar of Ethiopia, 2001) is 2 hours, 7.72 minutes. The second fastest time is 2 hours, 8.017 minutes (Juma Ikangaa of Tanzania, 1989).

How much faster was Jifar's time than Ikangaa's? \_\_\_\_\_

2. In the 1908 Olympic Games, Erik Lemming of Sweden won the javelin throw with a distance of 54.825 meters. He won again in 1912 with a distance of 60.64 meters.

How much longer was his 1912 throw than his 1908 throw?

\_\_\_\_\_

3. Driver Buddy Baker (Oldsmobile, 1980) holds the record for the fastest winning speed in the Daytona 500 at 177.602 miles per hour. Bill Elliott (Ford, 1987) has the second fastest speed at 176.263 miles per hour.

How much faster is Baker's speed than Elliott's?

\_\_\_\_\_

4. The highest scoring World Cup Soccer Final was in 1954. Teams played 26 games and scored 140 goals for an average of 5.38 goals per game. In 1950, teams played 22 games and scored 88 goals for an average of 4 goals per game.

What is the difference between the 1954 and the 1950 average goals per game?

\_\_\_\_\_

5.  $46.09 + 123.047$  Estimate \_\_\_\_\_ 6.  $0.172 + 4.5$  Estimate \_\_\_\_\_

$$46.09 + 123.047 = \underline{\hspace{2cm}} \quad 0.172 + 4.5 = \underline{\hspace{2cm}}$$

**Practice**

Solve mentally.

7.  $\$0.36 + \$0.29 + \$0.64 + \underline{\hspace{2cm}} = \$2.00$

8.  $7.03 + \underline{\hspace{2cm}} + 14.05 + 13.07 = 35$

9.  $9.225 + 8.5 + 5.775 + \underline{\hspace{2cm}} = 25$

10.  $\$3.69 + \underline{\hspace{2cm}} + \$8.31 + \$6.25 = \$25$



Name \_\_\_\_\_

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**STUDY LINK**  
**2.4**

## Multiplying by Powers of 10



### Some Powers of 10

$10^4$	$10^3$	$10^2$	$10^1$	$10^0$	.	$10^{-1}$	$10^{-2}$	$10^{-3}$	$10^{-4}$
$10 * 10 * 10 * 10$	$10 * 10 * 10$	$10 * 10$	10	1	.	$\frac{1}{10}$	$\frac{1}{10} * \frac{1}{10}$	$\frac{1}{10} * \frac{1}{10} * \frac{1}{10}$	$\frac{1}{10} * \frac{1}{10} * \frac{1}{10} * \frac{1}{10}$
10,000	1,000	100	10	1	.	0.1	0.01	0.001	0.0001

Multiply.

1.  $4.9 * 0.001 =$  \_\_\_\_\_

2. \_\_\_\_\_  $= 7.8 * 0.01$

3.  $30 * 10^{-1} =$  \_\_\_\_\_

4. \_\_\_\_\_  $= 7 * 10^{-2}$

5.  $0.15 * 10^3 =$  \_\_\_\_\_

6. \_\_\_\_\_  $= 1.9 * 100$

7.  $37.6 * 10^2 =$  \_\_\_\_\_

8.  $42.8 * 10^{-3} =$  \_\_\_\_\_

9. Mathematician Edward Kasner asked his 9-year-old nephew to invent a name for the number represented by  $10^{100}$ . The boy named it a *googol*. Later, an even larger number was named—a *googolplex*. This number is represented by  $10^{\text{googol}}$ , or  $10^{10^{100}}$ .

a. How many zeros are in the standard form of a googol, or  $10^{100}$ ? \_\_\_\_\_

b. One googolplex is 1 followed by how many zeros? \_\_\_\_\_

10. The speed of computer memory and logic chips is measured in nanoseconds. A nanosecond is one-billionth of a second, or  $10^{-9}$  second. Write this number in standard form. \_\_\_\_\_
11. Light travels about 1 mile in 0.000005 seconds. If a spacecraft could travel at this speed, it would travel almost  $10^6$  miles in 5 seconds. About how far would this spacecraft travel in 50 seconds? \_\_\_\_\_ miles

**Practice**

Mentally calculate your change from \$10.

12. Cost: \$4.75; Change: \_\_\_\_\_

13. Cost: \$3.98; Change: \_\_\_\_\_

14. Cost: \$0.89; Change: \_\_\_\_\_

15. Cost: \$8.46; Change: \_\_\_\_\_



Name \_\_\_\_\_

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13

**STUDY LINK**  
**2-5****Multiplying Decimals: Part 1**

Multiply.

$$\begin{array}{r} 1. \quad 23 \\ * 87 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 56 \\ * 23 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 124 \\ * 96 \\ \hline \end{array}$$



4. Use your answer for Problem 1 to place the decimal point in each product.

a.  $2.3 * 8.7 =$  \_\_\_\_\_

b.  $23 * 0.87 =$  \_\_\_\_\_

c.  $2.3 * 87 =$  \_\_\_\_\_

5. Use your answer for Problem 3 to place the decimal point in each product.

a.  $124 * 9.6 =$  \_\_\_\_\_

b.  $1.24 * 9.6 =$  \_\_\_\_\_

c.  $12.4 * 0.96 =$  \_\_\_\_\_

Two new U.S. nickels were issued in 2004. A likeness of Thomas Jefferson remained on the front of the nickels. The reverse side featured images commemorating either the Louisiana Purchase or the Lewis and Clark expedition.

6. A U.S. nickel is 1.95 mm thick.

a. Estimate the height of a stack of 25 nickels. Estimate \_\_\_\_\_ mm

b. Calculate the actual height of the stack in mm. \_\_\_\_\_ mm

c. How much is a stack of 25 nickels worth? \_\_\_\_\_

**Practice**

Multiply by 0.10 to find 10% of each number.

7. 10% of \$50.00 = \_\_\_\_\_

8. 10% of \$110.00 = \_\_\_\_\_

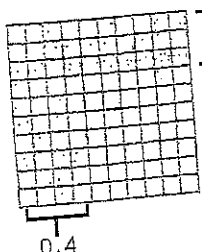
9. 10% of 345 = \_\_\_\_\_

10. 10% of 0.70 = \_\_\_\_\_



Find each product.

1



$$\begin{array}{r} 0.3 \leftarrow 1 \text{ Decimal place} \\ \times 0.4 \leftarrow 1 \text{ Decimal place} \\ \hline 0.\square\square \leftarrow 2 \text{ Decimal places} \end{array}$$

2

$$\begin{array}{r} 1.8 \leftarrow 1 \text{ Decimal place} \\ \times 0.7 \leftarrow 1 \text{ Decimal place} \\ \hline \square.\square\square \end{array}$$

3

$$\begin{array}{r} 0.14 \leftarrow \text{— Decimal places} \\ \times 0.6 \leftarrow \text{— Decimal places} \\ \hline \leftarrow \text{— Decimal places} \end{array}$$

Remember to write zeros in the product as needed.

4

$$\begin{array}{r} 1.26 \leftarrow \text{— Decimal places} \\ \times 0.32 \leftarrow \text{— Decimal places} \\ \hline \square\square\square \\ \square\square\square \\ \hline \leftarrow \text{— Decimal places} \end{array}$$

5

$$\begin{array}{l} 4.8 \times 1 = \text{—} \\ 4.8 \times 10 = \text{—} \\ 4.8 \times 100 = \text{—} \end{array}$$

6

$$\begin{array}{l} 2.15 \times 1 = \text{—} \\ 2.15 \times 10 = \text{—} \\ 2.15 \times 100 = \text{—} \end{array}$$

Find each quotient.

7

$$4.8 \overline{)120} \rightarrow 48 \overline{)1200}$$

$4.8 \times 10 = 48$     $120 \times 10 = 1200$

Think: Multiply the divisor by a power of 10 to make a whole number. Multiply the dividend by the same number.

8

$$2.15 \overline{)9.03} \quad \times 100 \quad \times 100$$

$$215 \overline{)903.00}$$

9

$$3 \overline{)19.35}$$

Remember to place the decimal point in the quotient.

10

$$6.8 \div 0.32$$

Think: Multiply 0.32 by 100 and  $6.8 \times 100$ . Then divi



Look at your work. Draw a circle around the quotient that has 4 in the

Directions: For questions 22 through 35, find the quotient.

22.  $4.2 \div 3.5 =$  \_\_\_\_\_

23.  $1634 \div 1.9 =$  \_\_\_\_\_

24.  $10.62 \div 3 =$  \_\_\_\_\_

25.  $20.18 \div 0.2 =$  \_\_\_\_\_

26.  $195 \div 5.2 =$  \_\_\_\_\_

27.  $65 \div 1.3 =$  \_\_\_\_\_

28.  $0.26 \div 0.4 = ?$

- A. 0.104
- B. 0.62
- C. 0.65
- D. 0.85

29.  $0.9 \div 10 =$  \_\_\_\_\_

30.  $2.56 \div 1.6 =$  \_\_\_\_\_

31.  $0.56 \div 0.7 =$  \_\_\_\_\_

32.  $0.78 \div 5.2 =$  \_\_\_\_\_

33.  $3.6 \div 2.25 =$  \_\_\_\_\_

34.  $532 \div 2.8 =$  \_\_\_\_\_

35.  $66.24 \div 3.6 = ?$

- A. 18.147
- B. 18.17
- C. 18.4
- D. 18.628

Find each product.

①  $0.6 \leftarrow 1 \text{ Decimal place}$   
 $\times 0.7 \leftarrow 1 \text{ Decimal place}$   
 $\leftarrow 2 \text{ Decimal places}$

②  $\$4.56$   
 $\times 3$

③  $\$1.75$   
 $\times 0.13$

④  $0.542$   
 $\times 0.4$

⑤  $0.12$   
 $\times 0.6$

⑥  $1.35 \times 1 = \underline{\hspace{2cm}}$

$1.35 \times 10 = \underline{\hspace{2cm}}$

$1.35 \times 100 = \underline{\hspace{2cm}}$

Remember to write  
zeros in the product  
as needed.

⑦  $4.8 \times 0.24$

⑧  $7.4 \times 0.3$

⑨  $6.4 \times 1.6$

Find each quotient.

⑩  $3.2 \overline{) 33.6}$

⑪  $2.84 \overline{) 5.68}$

⑫  $6 \overline{) 25.92}$

⑬  $3 \overline{) 19.35}$

⑭  $9.8 \div 0.32$

⑮  $15.4 \div 0.22$

18

Find each product or quotient.

$$\begin{array}{r} 0.18 \\ \times 0.6 \\ \hline \end{array}$$

$$\begin{array}{r} 1.72 \\ \times 0.3 \\ \hline \end{array}$$

$$\begin{array}{r} \$12.08 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} \$10.60 \\ \times 0.15 \\ \hline \end{array}$$

$$5.2 \times 0.73$$

$$6.7 \times 0.19$$

$$2.7 \times 1 = \underline{\hspace{2cm}}$$

$$2.7 \overline{) 12.15}$$

$$2.7 \times 10 = \underline{\hspace{2cm}}$$

$$2.7 \times 100 = \underline{\hspace{2cm}}$$

$$5.5 \overline{) 660}$$

$$1.73 \overline{) 519}$$

$$4.01 \overline{) 65.3}$$

$$7.3 \overline{) 90.5}$$

$$3.5 \overline{) 714}$$

$$9.2 \overline{) 548}$$

$$0.08 \overline{) 328}$$

$$0.61 \overline{) 15.25}$$

$$17 \quad 80.5 \div 2.5$$

$$18 \quad 0.04 \times 125$$

$$19 \quad 9.66 \div 1.2$$

$$20 \quad 167 \times 0.08$$



Write the steps you take to divide a decimal by a decimal.  
Use Problem 8 as an example.

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Name \_\_\_\_\_

Date \_\_\_\_\_

Time \_\_\_\_\_

**STUDY LINK**  
**2.6****Multiplying Decimals: Part 2****19**

Place a decimal point in each problem.

1.  $2.43 \times 7.06 = 171.558$

2.  $16.4 \times 0.7 = 1148$

3.  $827 \times 9.5 = 7.8565$

4.  $7563 \times 5.1 = 3,857.13$

Multiply. Show your work on a separate sheet of paper or on the back of this page.

5. \_\_\_\_\_  $= 2.28 \times 7.9$

6. \_\_\_\_\_  $= 49.7 \times 0.6$

7. \_\_\_\_\_  $= 3.84 \times 13$

8. \_\_\_\_\_  $= 0.19 \times 53.9$

Solve each problem. Then write a number model.  
(Hint: Change fractions to decimals.)

9. Janine rides her bike at an average speed of 11.8 miles per hour. At that speed, about how many miles can she ride in
- $6\frac{1}{2}$
- hours? \_\_\_\_\_

Number Model \_\_\_\_\_

10. Kate types at an average rate of 1.25 pages per quarter hour. If she types for
- $2\frac{3}{4}$
- hours, about how many pages can she type? \_\_\_\_\_

Number Model \_\_\_\_\_

11. Find the area in square meters of a rectangle with length 1.4 m and width 2.9 m. \_\_\_\_\_

Number Model \_\_\_\_\_

**Practice**

Multiply mentally by 0.10 to find 10%. Then mentally calculate the percent that has been assigned to each number.

12. 20% of \$80.00 = \_\_\_\_\_

13. 5% of \$220.00 = \_\_\_\_\_

14. 15% of 640 = \_\_\_\_\_

15. 30% of 80 = \_\_\_\_\_



Name \_\_\_\_\_

Date \_\_\_\_\_

Time \_\_\_\_\_

**STUDY LINK**  
**2-8**

## Dividing Decimals



For each problem, follow the steps below. Show your work on a separate sheet of paper or a computation grid.

- ◆ Estimate the quotient. Use numbers that are close to the numbers given and that are easy to divide. Write your estimate. Then write a number sentence to show how you estimated.
- ◆ Ignore any decimal points. Divide as if the numbers were whole numbers.
- ◆ Use your estimate to insert a decimal point in the final answer.

1.  $19.76 \div 8$  Estimate \_\_\_\_\_

\_\_\_\_\_  
How I estimated

Answer \_\_\_\_\_

2.  $78.8 \div 4$  Estimate \_\_\_\_\_

\_\_\_\_\_  
How I estimated

Answer \_\_\_\_\_

3.  $85.8 \div 13$  Estimate \_\_\_\_\_

\_\_\_\_\_  
How I estimated

Answer \_\_\_\_\_

4.  $51.8 \div 7$  Estimate \_\_\_\_\_

\_\_\_\_\_  
How I estimated

Answer \_\_\_\_\_

5. Find  $17 \div 6$ . Give the answer as a decimal with 2 digits after the decimal point.

\_\_\_\_\_

6. Five people sent a \$36 arrangement of flowers to a friend. Divide \$36 into 5 equal shares. How much is 1 share, in dollars and cents?

\_\_\_\_\_

### Practice

Divide mentally to find the price for 1 pound (lb).

7. \$3.98 for 2 lb = \$ \_\_\_\_\_ per 1 lb

8. \$16.88 for 4 lb = \$ \_\_\_\_\_ per 1 lb

9. \$45.80 for 5 lb = \$ \_\_\_\_\_ per 1 lb

10. \$299.10 for 10 lb = \$ \_\_\_\_\_ per 1 lb



Name \_\_\_\_\_

(21)

Solve.

- 1 Ava bought 3.5 kilograms of grapes for \$8.68. How much does 1 kilogram of grapes cost?
- 2 Jordan has \$10.00. If each drawing pen costs \$1.49, how many can he buy?
- 3 Tyler's cat had 7 kittens. Each one weighed about 3.75 ounces. How much did they weigh altogether?
- 4 Marina bought 2.6 pounds of salmon at the fish market. The total cost was \$38.87. What was the price of the salmon per pound?
- 5 The price of the jacket is \$60. The sales tax is 8% of the price. How much is the sales tax on the jacket?
- 6 The dinner check was \$78.00. If Erin leaves a 20% tip, how much will the tip be?

Circle the letter for the correct answer.

- 7 What is the product of 0.14 and 0.03?
- a) 0.0042  
b) 0.042  
c) 0.42  
d) 4.2
- 8 What is the quotient of 3.92 divided by 0.04?
- a) 980  
b) 98  
c) 9.8  
d) 0.98

22

Lesson 9: Multiplying and Dividing Decimals

CCSS: 6.NS.3

15. Frank ran the 100-meter dash in 10.9 seconds. It took Vern 1.25 times that long to run it. How long did it take Vern to run the 100-meter dash?
- 
16. Cassidy earns \$7.80 per hour for babysitting. How much would Cassidy earn if she babysat for 4.5 hours?
- 
17. Malik bought 2.5 pounds of hamburger meat. The hamburger meat cost \$3.18 per pound. How much did Malik pay for the hamburger meat?
- 
18. Leah picked 2.6 pounds of blackberries. Ashlyn picked 1.8 times as many pounds of blackberries as Leah. How many pounds of blackberries did Ashlyn pick?
- 
19. Corey bought 5 T-shirts for \$9.79 each. How much did Corey spend on T-shirts?
- 
20. Raj jogs an average of 0.63 of an hour each day. How much time does he spend jogging in 5 days?
- 
21. Loretta swam 2 laps in 12.09 seconds. It took her 1.4 times as long to swim a third and fourth lap. How long did it take her to swim the third and fourth laps?
-

**STUDY LINK**  
**2-9****Using Scientific Notation**

Write each number in standard notation.

1.  $1.24 * 10^4 =$  \_\_\_\_\_ 2.  $3.5 * 10^{-3} =$  \_\_\_\_\_

3.  $8 * 10^{-6} =$  \_\_\_\_\_ 4.  $7.061 * 10^8 =$  \_\_\_\_\_

Change the numbers given in standard notation to scientific notation. Change the numbers given in scientific notation to standard notation.

5. Light travels about 11,802,000,000, or \_\_\_\_\_, inches per second.

6. A bacterium can travel across a table at a speed of  $1.6 * 10^{-4}$ ,  
or \_\_\_\_\_, km per hour.

7. One dollar bill has a thickness of 0.0043, or \_\_\_\_\_, inches.

8. The mass of 1 million pennies is approximately  $2.835 * 10^6$ ,  
or \_\_\_\_\_, grams.Use  $<$ ,  $>$ , or  $=$  to compare each pair of numbers.

9.  $10^{-2}$  \_\_\_\_\_  $10^{-3}$

10.  $1.23 * 10^{-3}$  \_\_\_\_\_  $\frac{1.23}{1,000}$

11.  $9.87 * 10^5$  \_\_\_\_\_  $1.2 * 10^6$

12.  $5.4 * 10^{-1}$  \_\_\_\_\_  $9.6 * 10^{-4}$

13. Explain how you can tell whether a number written in scientific notation is less than 1.  
\_\_\_\_\_**Practice**

Solve mentally.

14.  $3,625 + 3,999 =$  \_\_\_\_\_ 15.  $8.7 - 4.99 =$  \_\_\_\_\_ 16.  $4 * 225 =$  \_\_\_\_\_

17.  $100,000 / 500 =$  \_\_\_\_\_ 18.  $683 - 298 =$  \_\_\_\_\_ 19.  $387 + 499 =$  \_\_\_\_\_



Name \_\_\_\_\_

Date \_\_\_\_\_

Time \_\_\_\_\_

**STUDY LINK**  
**2•10**

## Exponential Notation



Use your calculator to write each number in standard notation.

1.  $7^2 =$  \_\_\_\_\_

2.  $(0.25)^2 =$  \_\_\_\_\_

3.  $4^3 =$  \_\_\_\_\_

4.  $(0.41)^3 =$  \_\_\_\_\_

5.  $10^{-5} =$  \_\_\_\_\_

6.  $(2.5)^{-3} =$  \_\_\_\_\_

Use digits to write each number in exponential notation.

7. three to the ninth power \_\_\_\_\_

8. eight to the seventh power \_\_\_\_\_

9. eleven to the negative third power \_\_\_\_\_

10. five-tenths to the negative sixth power \_\_\_\_\_

Write each number as a product of repeated factors.

**Example:**  $5^3 = 5 * 5 * 5$ 

11.  $(\frac{1}{2})^5 =$  \_\_\_\_\_

12.  $10^{-2} =$  \_\_\_\_\_

13.  $10^{-6} =$  \_\_\_\_\_

14. You can find the total number of different 4-digit numbers that can be made using the digits 1 through 9 by raising the number of choices for each digit (9) to the number of digits (4), or  $9^4$ .

Based on this pattern, how many different 5-digit numbers could you make from the digits 1 through 8? \_\_\_\_\_

**Practice**

Solve mentally.

15.  $15.32 - 1.88 =$  \_\_\_\_\_

16.  $7,200 / 90 =$  \_\_\_\_\_

17.  $4.98 + 3.99 =$  \_\_\_\_\_

18.  $8 * 525 =$  \_\_\_\_\_

# Multiply by Powers of Ten (A)

Find each product.

$58 \times 10 =$

$75 \times 10 =$

$54 \times 10 =$

$21 \times 0.1 =$

$2 \times 0.001 =$

$3 \times 0.1 =$

$54 \times 1,000 =$

$71 \times 100 =$

$33 \times 10 =$

$24 \times 100 =$

$61 \times 10 =$

$61 \times 10 =$

$95 \times 1 =$

$4 \times 0.01 =$

$68 \times 10 =$

$17 \times 0.01 =$

$89 \times 1 =$

$52 \times 1,000 =$

$20 \times 0.001 =$

$49 \times 1 =$

26

## Multiply by Powers of Ten (A)

Find each product.

$$8.87 \times 0.001 =$$

$$7.725 \times 0.001 =$$

$$9.57 \times 100 =$$

$$1.088 \times 1 =$$

$$3.152 \times 0.001 =$$

$$9.2236 \times 10 =$$

$$9.4848 \times 1,000 =$$

$$2.8 \times 1 =$$

$$5.5654 \times 100 =$$

$$4.75 \times 10 =$$

$$9.55 \times 100 =$$

$$3.8 \times 0.001 =$$

$$9.47 \times 1,000 =$$

$$1.418 \times 1 =$$

$$9.532 \times 0.01 =$$

$$1.7947 \times 10 =$$

$$6 \times 1,000 =$$

$$2.4132 \times 0.001 =$$

$$1.013 \times 1,000 =$$

$$9.8131 \times 10 =$$

# Multiply by Negative Powers of Ten (A)

Find each product.

$$92 \times 10^{-1} =$$

$$98 \times 10^{-2} =$$

$$58 \times 10^{-1} =$$

$$10 \times 10^{-2} =$$

$$16 \times 10^{-1} =$$

$$18 \times 10^{-2} =$$

$$31 \times 10^{-1} =$$

$$62 \times 10^{-3} =$$

$$87 \times 10^{-2} =$$

$$5 \times 10^{-1} =$$

$$34 \times 10^{-3} =$$

$$77 \times 10^{-2} =$$

$$95 \times 10^{-1} =$$

$$71 \times 10^{-1} =$$

$$50 \times 10^{-2} =$$

$$31 \times 10^{-3} =$$

$$72 \times 10^{-1} =$$

$$6 \times 10^{-2} =$$

$$37 \times 10^{-1} =$$

$$68 \times 10^{-3} =$$

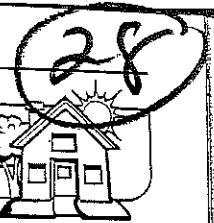




Name \_\_\_\_\_

Date \_\_\_\_\_

Time \_\_\_\_\_


**STUDY LINK**  
**2-11**

## Scientific Notation



Write the following numbers in scientific notation.

1. 0.0036 \_\_\_\_\_

2. 0.0007 \_\_\_\_\_

3. 80,000 \_\_\_\_\_

4. 600 thousand \_\_\_\_\_

Write the following numbers in standard notation.

5.  $5 \times 10^4$  \_\_\_\_\_

6.  $4.73 \times 10^9$  \_\_\_\_\_

7.  $4.81 \times 10^7$  \_\_\_\_\_

8.  $8.04 \times 10^{-2}$  \_\_\_\_\_

Write the next two numbers in each pattern.

9.  $1 \times 10^{-1}$ ; 0.1;  $1 \times 10^{-2}$ ; 0.01; \_\_\_\_\_; \_\_\_\_\_

10. 0.01, 0.002, 0.0003, \_\_\_\_\_, \_\_\_\_\_

Solve the following problems. Write each answer in scientific notation.

11.  $(4 \times 10^3) - 10^2 =$  \_\_\_\_\_

12.  $10^3 - (2 \times 10^1) =$  \_\_\_\_\_

13.  $(5 \times 10^{-1}) + 0.02 =$  \_\_\_\_\_

14.  $(7 \times 10^4) - 10^3 =$  \_\_\_\_\_

15. Use a calculator to complete the table.

Problem	Calculator Display	Scientific Notation	Standard Notation
$5,000,000^2$			
$90^4 - 300^2$			
$20^3 + 30^2$			
$10^4 \times 10^4$			
$5^{20} / 5^{16}$			

### Practice

Find the missing digits to complete each number sentence.

16.  $\square, \square 63 - 3,9\square 9 = 2,83\square$

17.  $71, \square 4\square - 4,8\square 6 = 6\square, 270$

55

## Lesson 9: Multiplying and Dividing Decimals

CCSS: 6.NS.3

36. Lauren is helping her parents put a row of bricks in front of their garden. The length of the garden is 105 inches. If each brick is 7.5 inches long, how many bricks will be used for the row?
- 
37. Strawberries are on sale for \$2.30 per pound. Noah bought a bag of strawberries for \$8.05. How many pounds of strawberries did Noah buy?
- 
38. Alexis spent \$12.72 on 8 equal-priced notebooks. How much did each notebook cost?
- 
39. Justin made 6 banana shakes for his friends. He used a total of 7.5 bananas. How many bananas did Justin use in each shake?
- 
40. Whitney's class went on a field trip to the St. Louis Gateway Arch. Each student rode the tram and saw a movie about the making of the arch. The total cost of the student tickets was \$142.50. If each combined ticket for the tram and the movie cost \$7.50, how many students went on the field trip?
- 
41. Rachel used 1.2 gallons of paint to paint 225 square feet of wall. How much wall does one gallon of paint cover?
- 

Explain how you found your answer.

---

---

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12

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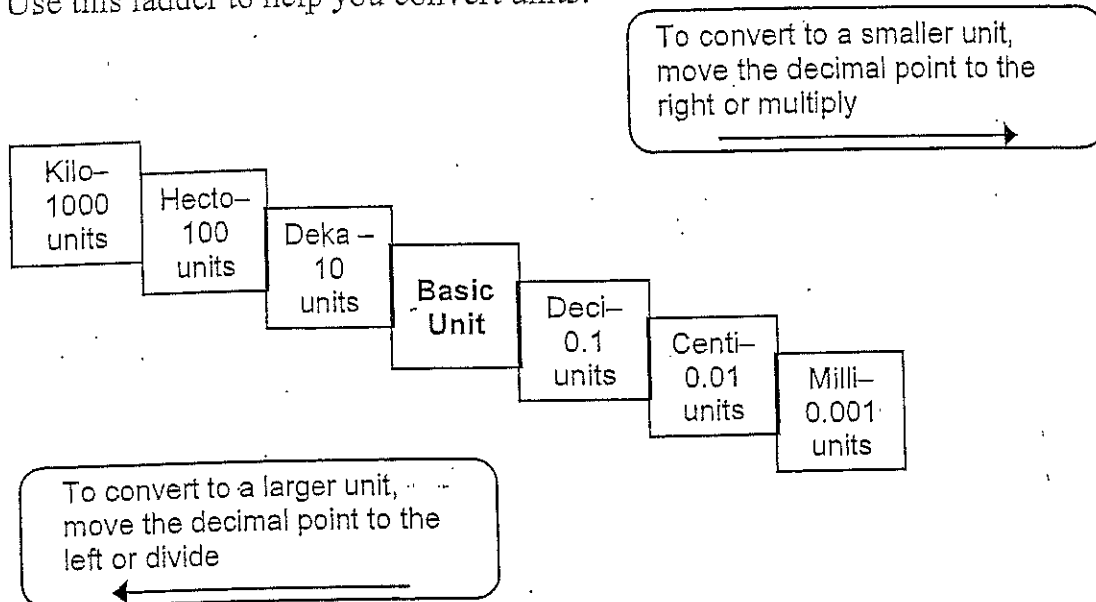
31

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33

## Metric Conversions

Use this ladder to help you convert units:



Practice with these conversions:

- 1) 3000 mg = \_\_\_\_\_ g
- 2) 105 km = \_\_\_\_\_ m
- 3) 500 cm = \_\_\_\_\_ m
- 4) 15.6 kg = \_\_\_\_\_ g
- 5) 10 mm = \_\_\_\_\_ cm
- 6) 7 L = \_\_\_\_\_ ml
- 7) 198 g = \_\_\_\_\_ kg
- 8) 65 ml = \_\_\_\_\_ L
- 9) 60 cm = \_\_\_\_\_ m
- 10) 7.6 m = \_\_\_\_\_ cm
- 11) 19 cm = \_\_\_\_\_ mm
- 12) 1500 m = \_\_\_\_\_ km
- 13) 25 g = \_\_\_\_\_ mg
- 14) 8.3 cm = \_\_\_\_\_ mm
- 15) 130 mg = \_\_\_\_\_ g

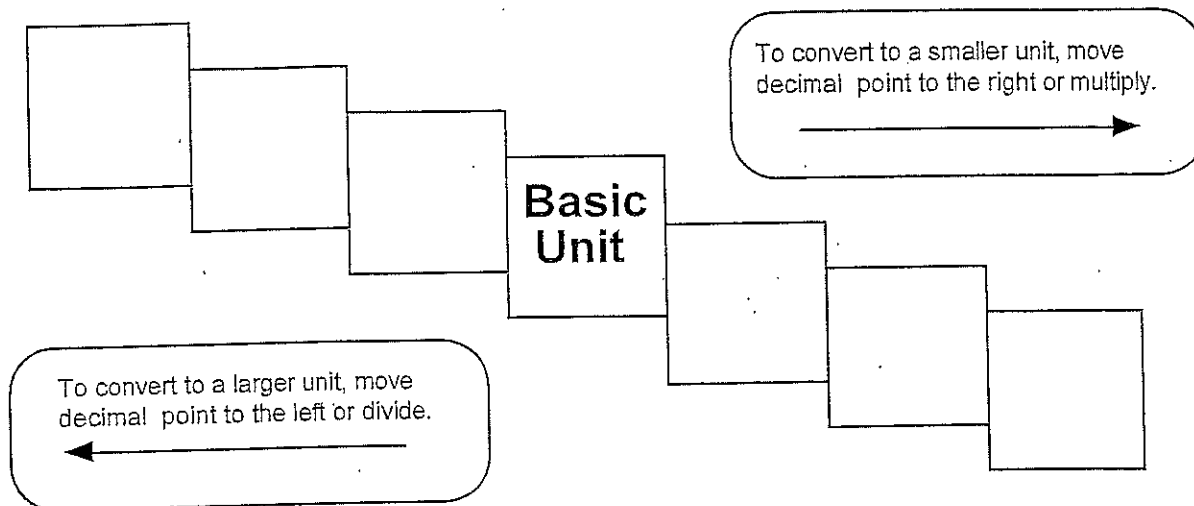
Here's an easy way to remember the metric units:

King Henry Died Monday Drinking Chocolate Milk



# Metric Mania Conversion Practice

Name \_\_\_\_\_



Try these conversions, using the ladder method.

1000 mg = \_\_\_\_\_ g

1 L = \_\_\_\_\_ mL

160 cm = \_\_\_\_\_ mm

14 km = \_\_\_\_\_ m

109 g = \_\_\_\_\_ kg

250 m = \_\_\_\_\_ km

Compare using <, >, or =.

56 cm ○ 6 m

7 g ○ 698 mg

32

Name : \_\_\_\_\_

Score : \_\_\_\_\_

Teacher : \_\_\_\_\_

Date : \_\_\_\_\_

### Converting Between Metric Units

- 1) 8.73 m to cm \_\_\_\_\_
- 2) 128,860 cm to m \_\_\_\_\_
- 3) 64.42 m to mm \_\_\_\_\_
- 4) 835,500 mm to m \_\_\_\_\_
- 5) 5.29 km to m \_\_\_\_\_
- 6) 4,019 m to km \_\_\_\_\_
- 7) 86.56 cm to mm \_\_\_\_\_
- 8) 5,940 mm to cm \_\_\_\_\_
- 9) 93.27 km to cm \_\_\_\_\_
- 10) 291,700 cm to km \_\_\_\_\_
- 11) 19.92 km to mm \_\_\_\_\_
- 12) 445 mm to km \_\_\_\_\_
- 13) 719.52 L to mL \_\_\_\_\_
- 14) 902,300 mL to L \_\_\_\_\_
- 15) 2.44 g to mg \_\_\_\_\_
- 16) 207,300 mg to g \_\_\_\_\_
- 17) 46.95 kg to g \_\_\_\_\_
- 18) 21,210 g to kg \_\_\_\_\_
- 19) 87.17 kg to mg \_\_\_\_\_
- 20) 2,655 mg to kg \_\_\_\_\_



# Metric Mania

Name \_\_\_\_\_

## Conversion Challenge

Write the correct abbreviation for each metric unit.

1) Kilogram \_\_\_\_\_

4) Milliliter \_\_\_\_\_

7) Kilometer \_\_\_\_\_

2) Meter \_\_\_\_\_

5) Millimeter \_\_\_\_\_

8) Centimeter \_\_\_\_\_

3) Gram \_\_\_\_\_

6) Liter \_\_\_\_\_

9) Milligram \_\_\_\_\_

Try these conversions, using the ladder method.

1) 2000 mg = \_\_\_\_\_ g

6) 5 L = \_\_\_\_\_ mL

11) 16 cm = \_\_\_\_\_ mm

2) 104 km = \_\_\_\_\_ m

7) 198 g = \_\_\_\_\_ kg

12) 2500 m = \_\_\_\_\_ km

3) 480 cm = \_\_\_\_\_ m

8) 75 mL = \_\_\_\_\_ L

13) 65 g = \_\_\_\_\_ mg

4) 5.6 kg = \_\_\_\_\_ g

9) 50 cm = \_\_\_\_\_ m

14) 6.3 cm = \_\_\_\_\_ mm

5) 8 mm = \_\_\_\_\_ cm

10) 5.6 m = \_\_\_\_\_ cm

15) 120 mg = \_\_\_\_\_ g

Compare using <, >, or =.

16) 63 cm ○ 6 m

17) 5 g ○ 508 mg

18) 1,500 mL ○ 1.5 L

19) 536 cm ○ 53.6 dm

20) 43 mg ○ 5 g

21) 3.6 m ○ 36 cm

(34)

# Scientific Notation Worksheet 3

Write a number in scientific notation.

1a. 3

1b. 7,407,170

2a. 75,925

2b. 464

3a. 445,024

3b. 1,202,260

4a. 250,618

4b. 35,658

5a. 92

5b. 7,877,900

6a. 86

6b. 4,541

## Answer Key

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