A

Number Correct: _____

Multiply Decimals

1.	$3 \times 2 =$		23.	$0.6 \times 2 =$	
2.	$3 \times 0.2 =$		24.	$0.6 \times 0.2 =$	
3.	$3 \times 0.02 =$		25.	$0.6 \times 0.02 =$	
4.	$3 \times 3 =$		26.	$0.2 \times 0.06 =$	
5.	$3 \times 0.3 =$		27.	$5 \times 7 =$	
6.	$3 \times 0.03 =$		28.	$0.5 \times 7 =$	
7.	$2 \times 4 =$		29.	$0.5 \times 0.7 =$	
8.	$2 \times 0.4 =$		30.	$0.5 \times 0.07 =$	
9.	$2 \times 0.04 =$		31.	$0.7 \times 0.05 =$	
10.	$5 \times 3 =$		32.	$2 \times 8 =$	
11.	$5 \times 0.3 =$		33.	$9 \times 0.2 =$	
12.	$5 \times 0.03 =$		34.	$3 \times 7 =$	
13.	$7 \times 2 =$		35.	$8 \times 0.03 =$	
14.	$7 \times 0.2 =$		36.	$4 \times 6 =$	
15.	$7 \times 0.02 =$		37.	$0.6 \times 7 =$	
16.	$4 \times 3 =$		38.	$0.7 \times 0.7 =$	
17.	$4 \times 0.3 =$		39.	$0.8 \times 0.06 =$	
18.	$0.4 \times 3 =$		40.	$0.09 \times 0.6 =$	
19.	$0.4 \times 0.3 =$		41.	$6 \times 0.8 =$	
20.	$0.4 \times 0.03 =$		42.	$0.7 \times 0.9 =$	
21.	$0.3 \times 0.04 =$		43.	$0.08 \times 0.8 =$	
22.	$6 \times 2 =$		44.	$0.9 \times 0.08 =$	

EUREKA MATH

Lesson 21: Explain the size of the product, and relate fraction and decimal equivalence to multiplying a fraction by 1.

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B

Multiply Decimals

1.	$4 \times 2 =$		23.	$0.8 \times 2 =$	
2.	$4 \times 0.2 =$		24.	$0.8 \times 0.2 =$	
3.	$4 \times 0.02 =$		25.	$0.8 \times 0.02 =$	
4.	$2 \times 3 =$		26.	$0.2 \times 0.08 =$	
5.	$2 \times 0.3 =$		27.	$5 \times 9 =$	
6.	$2 \times 0.03 =$		28.	$0.5 \times 9 =$	
7.	$3 \times 3 =$		29.	$0.5 \times 0.9 =$	
8.	$3 \times 0.3 =$		30.	$0.5 \times 0.09 =$	
9.	$3 \times 0.03 =$		31.	$0.9 \times 0.05 =$	
10.	$4 \times 3 =$		32.	$2 \times 6 =$	
11.	$4 \times 0.3 =$		33.	$7 \times 0.2 =$	
12.	$4 \times 0.03 =$		34.	$3 \times 8 =$	
13.	$9 \times 2 =$		35.	$9 \times 0.03 =$	
14.	$9 \times 0.2 =$		36.	$4 \times 8 =$	
15.	$9 \times 0.02 =$		37.	$0.7 \times 6 =$	
16.	$5 \times 3 =$		38.	$0.6 \times 0.6 =$	
17.	$5 \times 0.3 =$		39.	$0.6 \times 0.08 =$	
18.	$0.5 \times 3 =$		40.	$0.06 \times 0.9 =$	
19.	$0.5 \times 0.3 =$		41.	$8 \times 0.6 =$	
20.	$0.5 \times 0.03 =$		42.	$0.9 \times 0.7 =$	
21.	$0.3 \times 0.05 =$		43.	$0.07 \times 0.7 =$	
22.	$8 \times 2 =$		44.	$0.8 \times 0.09 =$	

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Lesson 21: Explain the size of the product, and relate fraction and decimal equivalence to multiplying a fraction by 1.

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Name _____ Date _____

1. Fill in the blanks. The first one has been done for you.

   a. $\frac{1}{4} \times 1 = \frac{1}{4} \times \frac{3}{3} = \frac{3}{12}$

   b. $\frac{3}{4} \times 1 = \frac{3}{4} \times - = \frac{21}{28}$

   c. $\frac{7}{4} \times 1 = \frac{7}{4} \times - = \frac{35}{20}$

   d. Use words to compare the size of the product to the size of the first factor.

2. Express each fraction as an equivalent decimal.

   a. $\frac{1}{4} \times \frac{25}{25} =$

   b. $\frac{3}{4} \times \frac{25}{25} =$

   c. $\frac{1}{5} \times - =$

   d. $\frac{4}{5} \times - =$

   e. $\frac{1}{20}$

   f. $\frac{27}{20}$

   g. $\frac{7}{4}$

   h. $\frac{8}{5}$

   i. $\frac{24}{25}$

   j. $\frac{93}{50}$

   k. $2\frac{6}{25}$

   l. $3\frac{31}{50}$

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Lesson 21: Explain the size of the product, and relate fraction and decimal equivalence to multiplying a fraction by 1.

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3. Jack said that if you take a number and multiply it by a fraction, the product will always be smaller than what you started with. Is he correct? Why or why not? Explain your answer, and give at least two examples to support your thinking.

4. There is an infinite number of ways to represent 1 on the number line. In the space below, write at least four expressions multiplying by 1. Represent *one* differently in each expression.

5. Maria multiplied by 1 to rename $\frac{1}{4}$ as hundredths. She made factor pairs equal to 10. Use her method to change one-eighth to an equivalent decimal.

$$\text{Maria's way: } \quad \frac{1}{4} = \frac{1}{2 \times 2} \times \frac{5 \times 5}{5 \times 5} = \frac{5 \times 5}{(2 \times 5) \times (2 \times 5)} = \frac{25}{100} = 0.25$$

$$\frac{1}{8} =$$

Paulo renamed $\frac{1}{8}$ as a decimal, too. He knows the decimal equal to $\frac{1}{4}$, and he knows that $\frac{1}{8}$ is half as much as $\frac{1}{4}$. Can you use his ideas to show another way to find the decimal equal to $\frac{1}{8}$?

Name _____   Date _____

1. Fill in the blanks.

    a. $\frac{1}{3} \times 1 = \frac{1}{3} \times \frac{3}{3} = \frac{}{9}$

    b. $\frac{2}{3} \times 1 = \frac{2}{3} \times \frac{}{-} = \frac{14}{21}$

    c. $\frac{5}{2} \times 1 = \frac{5}{2} \times \frac{}{-} = \frac{25}{-}$

    d.   Compare the first factor to the value of the product.

2. Express each fraction as an equivalent decimal. The first one is partially done for you.

    a. $\frac{3}{4} \times \frac{25}{25} = \frac{3 \times 25}{4 \times 25} = \frac{}{100} =$ b. $\frac{1}{4} \times \frac{25}{25} =$

    c. $\frac{2}{5} \times \frac{}{-} =$ d. $\frac{3}{5} \times \frac{}{-} =$

    e. $\frac{3}{20}$ f. $\frac{25}{20}$

g. $\dfrac{23}{25}$

h. $\dfrac{89}{50}$

i. $3\dfrac{11}{25}$

j. $5\dfrac{41}{50}$

3. $\dfrac{6}{8}$ is equivalent to $\dfrac{3}{4}$. How can you use this to help you write $\dfrac{6}{8}$ as a decimal? Show your thinking to solve.

4. A number multiplied by a fraction is not always smaller than the original number. Explain this and give at least two examples to support your thinking.

5. Elise has $\dfrac{3}{4}$ of a dollar. She buys a stamp that costs 44 cents. Change both numbers into decimals, and tell how much money Elise has after paying for the stamp.

Name _____   Date _____

1. Solve for the unknown. Rewrite each phrase as a multiplication sentence. Circle the scaling factor and put a box around the number of meters.

   a. $\frac{1}{2}$ as long as 8 meters = _____ meter(s)

   b. 8 times as long as $\frac{1}{2}$ meter = _____ meter(s)

2. Draw a tape diagram to model each situation in Problem 1, and describe what happened to the number of meters when it was multiplied by the scaling factor.

   a.   b.

3. Fill in the blank with a numerator or denominator to make the number sentence true.

   a. $7 \times \dfrac{}{4} < 7$

   b. $\dfrac{7}{} \times 15 > 15$

   c. $3 \times \dfrac{}{5} = 3$

4. Look at the inequalities in each box. Choose a single fraction to write in all three blanks that would make all three number sentences true. Explain how you know.

   a.

$\frac{3}{4} \times$ ____ $> \frac{3}{4}$	$2 \times$ ____ > 2	$\frac{7}{5} \times$ ____ $> \frac{7}{5}$

   b.

$\frac{3}{4} \times$ ____ $< \frac{3}{4}$	$2 \times$ ____ < 2	$\frac{7}{5} \times$ ____ $< \frac{7}{5}$

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Lesson 22: Compare the size of the product to the size of the factors.

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5. Johnny says multiplication always makes numbers bigger. Explain to Johnny why this isn't true. Give more than one example to help him understand.

6. A company uses a sketch to plan an advertisement on the side of a building. The lettering on the sketch is $\frac{3}{4}$ inch tall. In the actual advertisement, the letters must be 34 times as tall. How tall will the letters be on the building?

7. Jason is drawing the floor plan of his bedroom. He is drawing everything with dimensions that are $\frac{1}{12}$ of the actual size. His bed measures 6 ft by 3 ft, and the room measures 14 ft by 16 ft. What are the dimensions of his bed and room in his drawing?

Name _____   Date _____

1. Solve for the unknown. Rewrite each phrase as a multiplication sentence. Circle the scaling factor and put a box around the number of meters.

   a. $\frac{1}{3}$ as long as 6 meters = _____ meter(s)   b. 6 times as long as $\frac{1}{3}$ meter = _____ meter(s)

2. Draw a tape diagram to model each situation in Problem 1, and describe what happened to the number of meters when it was multiplied by the scaling factor.

   a.   b.

3. Fill in the blank with a numerator or denominator to make the number sentence true.

   a. $5 \times \dfrac{}{3} > 5$ b. $\dfrac{6}{} \times 12 < 12$ c. $4 \times \dfrac{}{5} = 4$

4. Look at the inequalities in each box. Choose a single fraction to write in all three blanks that would make all three number sentences true. Explain how you know.

   a.

   | $\frac{2}{3} \times$ _____ $> \frac{2}{3}$ | $4 \times$ _____ > 4 | $\frac{5}{3} \times$ _____ $> \frac{5}{3}$ |

   b.

   | $\frac{2}{3} \times$ _____ $< \frac{2}{3}$ | $4 \times$ _____ < 4 | $\frac{5}{3} \times$ _____ $< \frac{5}{3}$ |

5. Write a number in the blank that will make the number sentence true.

    a. $3 \times$ _____ < 1

    b. Explain how multiplying by a whole number can result in a product less than 1.

6. In a sketch, a fountain is drawn $\frac{1}{4}$ yard tall. The actual fountain will be 68 times as tall. How tall will the fountain be?

7. In blueprints, an architect's firm drew everything $\frac{1}{24}$ of the actual size. The windows will actually measure 4 ft by 6 ft and doors measure 12 ft by 8 ft. What are the dimensions of the windows and the doors in the drawing?

Lesson 22:   Compare the size of the product to the size of the factors.

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Name _____   Date _____

Fill in the blank to make the number sentences true. Explain how you know.

     a. $\dfrac{}{3} \times 11 > 11$

     b. $5 \times \dfrac{}{8} < 5$

     c. $6 \times \dfrac{2}{} = 6$

Name _____   Date _____

1. Fill in the blank using one of the following scaling factors to make each number sentence true.

| 1.021 | 0.989 | 1.00 |

a. 3.4 × _____ = 3.4   b. _____ × 0.21 > 0.21   c. 8.04 × _____ < 8.04

2.
    a. Sort the following expressions by rewriting them in the table.

The product is less than the boxed number:	The product is greater than the boxed number:

13.89 × 1.004   602 × 0.489   102.03 × 4.015

0.3 × 0.069   0.72 × 1.24   0.2 × 0.1

    b. Explain your sorting by writing a sentence that tells what the expressions in each column of the table have in common.

Lesson 23:   Compare the size of the product to the size of the factors.

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3. Write a statement using one of the following phrases to compare the value of the expressions.
   Then, explain how you know.

   is slightly more than   *is a lot more than*   *is slightly less than*   *is a lot less than*

   a. 4 × 0.988 _____ 4

   b. 1.05 × 0.8 _____ 0.8

   c. 1,725 × 0.013 _____ 1,725

   d. 989.001 × 1.003 _____ 1.003

   e. 0.002 × 0.911 _____ 0.002

4. During science class, Teo, Carson, and Dhakir measure the length of their bean sprouts. Carson's sprout is 0.9 times the length of Teo's, and Dhakir's is 1.08 times the length of Teo's. Whose bean sprout is the longest? The shortest? Explain your reasoning.

5. Complete the following statements; then use decimals to give an example of each.

  ▪ $a \times b > a$ will always be true when b is…

  ▪ $a \times b < a$ will always be true when b is…

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Lesson 23:   Compare the size of the product to the size of the factors.

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Name _____   Date _____

1.
   a. Sort the following expressions by rewriting them in the table.

The product is less than the boxed number:	The product is greater than the boxed number:

    $\boxed{12.5} \times 1.989$ $\boxed{828} \times 0.921$ $\boxed{321.46} \times 1.26$

    $\boxed{0.007} \times 1.02$ $\boxed{2.16} \times 1.11$ $\boxed{0.05} \times 0.1$

   b. What do the expressions in each column have in common?

2. Write a statement using one of the following phrases to compare the value of the expressions. Then, explain how you know.

    is slightly more than   *is a lot more than*   *is slightly less than*   *is a lot less than*

   a. 14×0.999 _____ 14

   b. 1.01×2.06 _____ 2.06

   c. $1,955 \times 0.019$ _____ 1,955

EUREKA MATH™ | Lesson 23:   Compare the size of the product to the size of the factors.   engage^ny   352

    d.   Two thousand × 1.0001   _____   two thousand

    e.   Two-thousandths × 0.911   _____   two-thousandths

3.   Rachel is 1.5 times as heavy as her cousin, Kayla. Another cousin, Jonathan, weighs 1.25 times as much as Kayla. List the cousins, from lightest to heaviest, and explain your thinking.

4.   Circle your choice.

    a. $a \times b > a$

       For this statement to be true, b must be   **greater than 1**   **less than 1**

       Write two expressions that support your answer. Be sure to include one decimal example.

    b. $a \times b < a$

       For this statement to be true, b must be   **greater than 1**   **less than 1**

       Write two expressions that support your answer. Be sure to include one decimal example.

EUREKA MATH   Lesson 23:   Compare the size of the product to the size of the factors.   engage^{ny}   353

Name _____   Date _____

1. Fill in the blank using one of the following scaling factors to make each number sentence true.

1.009	1.00	0.898

a. $3.06 \times$ _____ < 3.06 b. $5.2 \times$ _____ $= 5.2$ c. _____ $\times 0.89 > 0.89$

2. Will the product of 22.65×0.999 be greater than or less than 22.65? Without calculating, explain how you know.

Name _____   Date _____

1. A vial contains 20 mL of medicine. If each dose is $\frac{1}{8}$ of the vial, how many mL is each dose? Express your
    answer as a decimal.

2. A container holds 0.7 liters of oil and vinegar. $\frac{3}{4}$ of the mixture is vinegar. How many liters of vinegar are
    in the container? Express your answer as both a fraction and a decimal.

3. Andres completed a 5-km race in 13.5 minutes. His sister's time was $1\frac{1}{2}$ times longer than his time. How long, in minutes, did it take his sister to run the race?

4. A clothing factory uses 1,275.2 meters of cloth a week to make shirts. How much cloth is needed to make $3\frac{3}{5}$ times as many shirts?

5. There are $\frac{3}{4}$ as many boys as girls in a class of fifth-graders. If there are 35 students in the class, how many are girls?

6. Ciro purchased a concert ticket for $56. The cost of the ticket was $\frac{4}{5}$ the cost of his dinner. The cost of his hotel was $2\frac{1}{2}$ times as much as his ticket. How much did Ciro spend altogether for the concert ticket, hotel, and dinner?

Name _____   Date _____

1. Jesse takes his dog and cat for their annual vet visit. Jesse's dog weighs 23 pounds. The vet tells him his cat's weight is $\frac{5}{8}$ as much as his dog's weight. How much does his cat weigh?

2. An image of a snowflake is 1.8 centimeters wide. If the actual snowflake is $\frac{1}{8}$ the size of the image, what is the width of the actual snowflake? Express your answer as a decimal.

EUREKA MATH™ | Lesson 24:   Solve word problems using fraction and decimal multiplication.   engage^ny   366

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3. A community bike ride offers a short 5.7-mile ride for children and families. The short ride is followed by a long ride, $5\frac{2}{3}$ times as long as the short ride, for adults. If a woman bikes the short ride with her children and then the long ride with her friends, how many miles does she ride altogether?

4. Sal bought a house for $78,524.60. Twelve years later he sold the house for $2\frac{3}{4}$ times as much. What was the sale price of the house?

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Lesson 24:   Solve word problems using fraction and decimal multiplication.

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5. In the fifth grade at Lenape Elementary School, there are $\frac{4}{5}$ as many students who do not wear glasses as those who do wear glasses. If there are 60 students who wear glasses, how many students are in the fifth grade?

6. At a factory, a mechanic earns $17.25 an hour. The president of the company earns $6\frac{2}{3}$ times as much for each hour he works. The janitor at the same company earns $\frac{3}{5}$ as much as the mechanic. How much does the company pay for all three employees' wages for one hour of work?

Name _____   Date _____

1. An artist builds a sculpture out of metal and wood that weighs 14.9 kilograms. $\frac{3}{4}$ of this weight is metal, and the rest is wood. How much does the wood part of the sculpture weigh?

2. On a boat tour, there are half as many children as there are adults. There are 30 people on the tour. How many children are there?

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Lesson 24:   Solve word problems using fraction and decimal multiplication.

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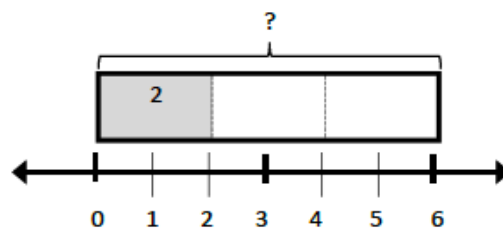
Name _____   Date _____

1. Draw a tape diagram and a number line to solve. You may draw the model that makes the most sense to you. Fill in the blanks that follow. Use the example to help you.

Example: $2 \div \frac{1}{3} =$ ___6___
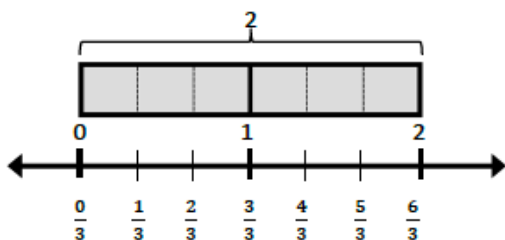
There are __3__ thirds in 1 whole.

There are __6__ thirds in 2 wholes.

If 2 is $\frac{1}{3}$, what is the whole? ___6___

a. $4 \div \frac{1}{2} =$ _____

There are _____ halves in 1 whole.

There are _____ halves in 4 wholes.

If 4 is $\frac{1}{2}$, what is the whole? _____

b. $2 \div \frac{1}{4} =$ _____

There are _____ fourths in 1 whole.

There are _____ fourths in 2 wholes.

If 2 is $\frac{1}{4}$, what is the whole? _____

EUREKA MATH

Lesson 25:   Divide a whole number by a unit fraction.

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c. $5 \div \frac{1}{3} =$ _____   There are _____ thirds in 1 whole.   If 5 is $\frac{1}{3}$, what is the whole? _____

There are _____ thirds in 5 wholes.

d. $3 \div \frac{1}{5} =$ _____   There are _____ fifths in 1 whole.   If 3 is $\frac{1}{5}$, what is the whole? _____

There are _____ fifths in 3 wholes.

2.   Divide. Then, multiply to check.

a. $5 \div \frac{1}{2}$	b. $3 \div \frac{1}{2}$	c. $4 \div \frac{1}{5}$	d. $1 \div \frac{1}{6}$
e. $2 \div \frac{1}{8}$	f. $7 \div \frac{1}{6}$	g. $8 \div \frac{1}{3}$	h. $9 \div \frac{1}{4}$

3. For an art project, Mrs. Williams is dividing construction paper into fourths. How many fourths can she make from 5 pieces of construction paper?

4. Use the chart below to answer the following questions.

Donnie's Diner Lunch Menu

Food	Serving Size
Hamburger	$\frac{1}{3}$ lb
Pickles	$\frac{1}{4}$ pickle
Potato chips	$\frac{1}{8}$ bag
Chocolate milk	$\frac{1}{2}$ cup

a. How many hamburgers can Donnie make with 6 pounds of hamburger meat?

b. How many pickle servings can be made from a jar of 15 pickles?

   c.   How many servings of chocolate milk can he serve from a gallon of milk?

5.   Three gallons of water fill $\frac{1}{4}$ of the elephant's pail at the zoo. How much water does the pail hold?

Name _____   Date _____

1. Draw a tape diagram and a number line to solve. Fill in the blanks that follow.

a. $3 \div \frac{1}{3} =$ _____

There are _____ thirds in 1 whole.

There are _____ thirds in 3 wholes.

If 3 is $\frac{1}{3}$, what is the whole? _____

b. $3 \div \frac{1}{4} =$ _____

There are _____ fourths in 1 whole.

There are _____ fourths in __ wholes.

If 3 is $\frac{1}{4}$, what is the whole? _____

c. $4 \div \frac{1}{3} =$ _____

There are _____ thirds in 1 whole.

There are _____ thirds in __ wholes.

If 4 is $\frac{1}{3}$, what is the whole? _____

d. $5 \div \frac{1}{4} =$ _____

There are _____ fourths in 1 whole.

There are _____ fourths in __ wholes.

If 5 is $\frac{1}{4}$, what is the whole? _____

2. Divide. Then, multiply to check.

a. $2 \div \frac{1}{4}$	b. $6 \div \frac{1}{2}$	c. $5 \div \frac{1}{4}$	d. $5 \div \frac{1}{8}$
e. $6 \div \frac{1}{3}$	f. $3 \div \frac{1}{6}$	g. $6 \div \frac{1}{5}$	h. $6 \div \frac{1}{10}$

3. A principal orders 8 sub sandwiches for a teachers' meeting. She cuts the subs into thirds and puts the mini-subs onto a tray. How many mini-subs are on the tray?

4. Some students prepare 3 different snacks. They make $\frac{1}{8}$ pound bags of nut mix, $\frac{1}{4}$ pound bags of cherries, and $\frac{1}{6}$ pound bags of dried fruit. If they buy 3 pounds of nut mix, 5 pounds of cherries, and 4 pounds of dried fruit, how many of each type of snack bag will they be able to make?

Name _____   Date _____

1. Draw a tape diagram and a number line to solve. Fill in the blanks that follow.

   a. $5 \div \frac{1}{2} =$ _____

   There are _____ halves in 1 whole.

   There are _____ halves in 5 wholes.

   5 is $\frac{1}{2}$ of what number? _____

   b. $4 \div \frac{1}{4} =$ _____

   There are _____ fourths in 1 whole.

   There are _____ fourths in _____ wholes.

   4 is $\frac{1}{4}$ of what number? _____

2. Ms. Leverenz is doing an art project with her class. She has a 3 foot piece of ribbon. If she gives each student an eighth of a foot of ribbon, will she have enough for her class of 22 students?

Name _____   Date _____

1. Draw a model or tape diagram to solve. Use the thought bubble to show your thinking. Write your
    quotient in the blank. Use the example to help you.

Example: $\frac{1}{2} \div 3$

1 half ÷ 3
= 3 sixths ÷ 3
= 1 sixth

$\frac{1}{2} \div 3 = \frac{1}{6}$

a. $\frac{1}{3} \div 2 = $ _____

b. $\frac{1}{3} \div 4 = $ _____

c. $\frac{1}{4} \div 2 =$ _____

d. $\frac{1}{4} \div 3 =$ _____

2. Divide. Then, multiply to check.

a. $\frac{1}{2} \div 7$	b. $\frac{1}{3} \div 6$	c. $\frac{1}{4} \div 5$	d. $\frac{1}{5} \div 4$
e. $\frac{1}{5} \div 2$	f. $\frac{1}{6} \div 3$	g. $\frac{1}{8} \div 2$	h. $\frac{1}{10} \div 10$

3. Tasha eats half her snack and gives the other half to her two best friends for them to share equally. What portion of the whole snack does each friend get? Draw a picture to support your response.

4. Mrs. Appler used $\frac{1}{2}$ gallon of olive oil to make 8 identical batches of salad dressing.

    a. How many gallons of olive oil did she use in each batch of salad dressing?

    b. How many cups of olive oil did she use in each batch of salad dressing?

5. Mariano delivers newspapers. He always puts $\frac{3}{4}$ of his weekly earnings in his savings account and then divides the rest equally into 3 piggy banks for spending at the snack shop, the arcade, and the subway.

   a. What fraction of his earnings does Mariano put into each piggy bank?

   b. If Mariano adds $2.40 to each piggy bank every week, how much does Mariano earn per week delivering papers?

Name _____   Date _____

1. Solve and support your answer with a model or tape diagram. Write your quotient in the blank.

   a. $\frac{1}{2} \div 4 =$ _____   b. $\frac{1}{3} \div 6 =$ _____

   c. $\frac{1}{4} \div 3 =$ _____   d. $\frac{1}{5} \div 2 =$ _____

2. Divide. Then, multiply to check.

a. $\frac{1}{2} \div 10$	b. $\frac{1}{4} \div 10$	c. $\frac{1}{3} \div 5$	d. $\frac{1}{5} \div 3$
e. $\frac{1}{8} \div 4$	f. $\frac{1}{7} \div 3$	g. $\frac{1}{10} \div 5$	h. $\frac{1}{5} \div 20$

EUREKA MATH™ | Lesson 26:   Divide a unit fraction by a whole number.

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3. Teams of four are competing in a quarter-mile relay race. Each runner must run the same exact distance. What is the distance each teammate runs?

4. Solomon has read $\frac{1}{3}$ of his book. He finishes the book by reading the same amount each night for 5 nights.

   a. What fraction of the book does he read each of the 5 nights?

   b. If he reads 14 pages on each of the 5 nights, how long is the book?

Name _____   Date _____

1. Solve. Support at least one of your answers with a model or tape diagram.

   a. $\frac{1}{2} \div 4 =$ _____

   b. $\frac{1}{8} \div 5 =$ _____

2. Larry spends half of his workday teaching piano lessons. If he sees 6 students, each for the same amount of time, what fraction of his workday is spent with each student?

EUREKA MATH | Lesson 26:   Divide a unit fraction by a whole number.   engage^{ny}

Name _____   Date _____

1. Mrs. Silverstein bought 3 mini cakes for a birthday party. She cuts each cake into quarters and plans to serve each guest 1 quarter of a cake. How many guests can she serve with all her cakes? Draw a picture to support your response.

2. Mr. Pham has $\frac{1}{4}$ pan of lasagna left in the refrigerator. He wants to cut the lasagna into equal slices so he can have it for dinner for 3 nights. How much lasagna will he eat each night? Draw a picture to support your response.

3. The perimeter of a square is $\frac{1}{5}$ of a meter.

    a. Find the length of each side in meters. Draw a picture to support your response.

    b. How long is each side in centimeters?

4. A pallet holding 5 identical crates weighs $\frac{1}{4}$ of a ton.

    a. How many tons does each crate weigh? Draw a picture to support your response.

   b.   How many pounds does each crate weigh?

5.   Faye has 5 pieces of ribbon, each 1 yard long. She cuts each ribbon into sixths.

   a.   How many sixths will she have after cutting all the ribbons?

   b.   How long will each of the sixths be in inches?

6. A glass pitcher is filled with water. $\frac{1}{8}$ of the water is poured equally into 2 glasses.

   a. What fraction of the water is in each glass?

   b. If each glass has 3 fluid ounces of water in it, how many fluid ounces of water were in the full pitcher?

   c. If $\frac{1}{4}$ of the remaining water is poured out of the pitcher to water a plant, how many cups of water are left in the pitcher?

Name _____   Date _____

1. Kelvin ordered four pizzas for a birthday party. The pizzas were cut in eighths. How many slices were there? Draw a picture to support your response.

2. Virgil has $\frac{1}{6}$ of a birthday cake left over. He wants to share the leftover cake with 3 friends. What fraction of the original cake will each of the 4 people receive? Draw a picture to support your response.

3. A pitcher of water contains $\frac{1}{4}$ liters of water. The water is poured equally into 5 glasses.

   a. How many liters of water are in each glass? Draw a picture to support your response.

b. Write the amount of water in each glass in milliliters.

4. Drew has 4 pieces of rope 1 meter long each. He cuts each rope into fifths.

   a. How many fifths will he have after cutting all the ropes?

   b. How long will each of the fifths be in centimeters?

5. A container is filled with blueberries. $\frac{1}{6}$ of the blueberries is poured equally into two bowls.

   a. What fraction of the blueberries is in each bowl?

   b. If each bowl has 6 ounces of blueberries in it, how many ounces of blueberries were in the full container?

   c. If $\frac{1}{5}$ of the remaining blueberries is used to make muffins, how many pounds of blueberries are left in the container?

Name _____   Date _____

1. Kevin divides 3 pieces of paper into fourths. How many fourths does he have? Draw a picture to support your response.

2. Sybil has $\frac{1}{2}$ of a pizza left over. She wants to share the pizza with 3 of her friends. What fraction of the original pizza will Sybil and her 3 friends each receive? Draw a picture to support your response.
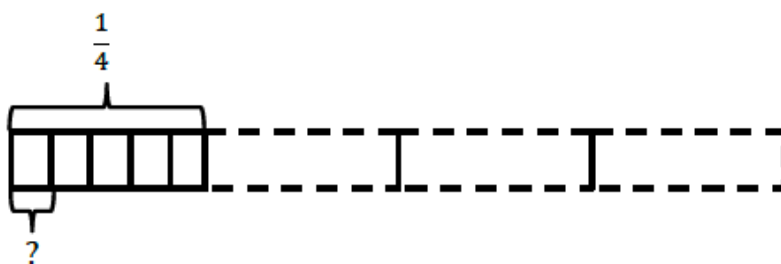
Name _____   Date _____

1. Create and solve a division story problem about 5 meters of rope that is modeled by the tape diagram below.
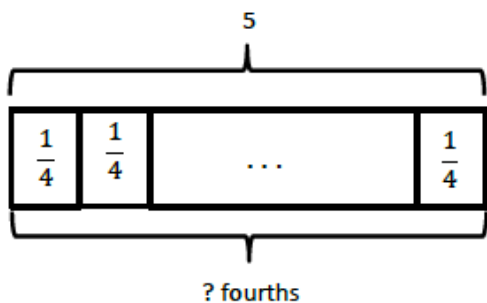
2. Create and solve a story problem about $\frac{1}{4}$ pound of almonds that is modeled by the tape diagram below.

3. Draw a tape diagram and create a word problem for the following expressions, and then solve.

   a. $2 \div \frac{1}{3}$
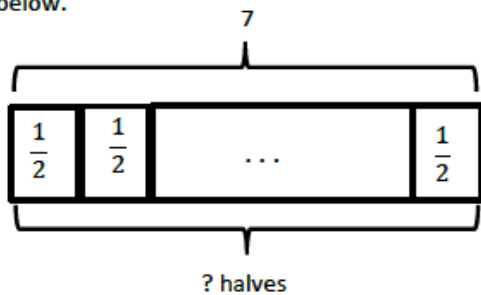
   b. $\frac{1}{3} \div 4$

   c. $\frac{1}{4} \div 3$

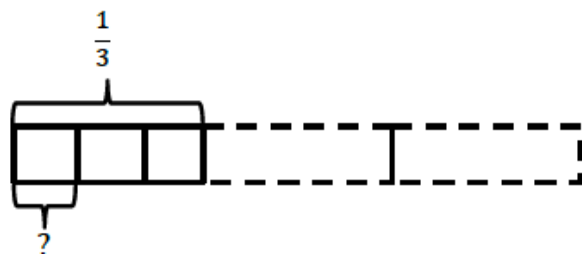   d. $3 \div \frac{1}{5}$

Name _____   Date _____

1. Create and solve a division story problem about 7 feet of rope that is modeled by the tape diagram below.

2. Create and solve a story problem about $\frac{1}{3}$ pound of flour that is modeled by the tape diagram below.

3. Draw a tape diagram and create a word problem for the following expressions. Then, solve and check.

   a. $2 \div \frac{1}{4}$

   b. $\frac{1}{4} \div 2$

   c. $\frac{1}{3} \div 5$

   d. $3 \div \frac{1}{10}$

EUREKA MATH™

Lesson 28:   Write equations and word problems corresponding to tape and
             number line diagrams.

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Name _____   Date _____

Create a word problem for the following expressions, and then solve.

   a. $4 \div \frac{1}{2}$

   b. $\frac{1}{2} \div 4$

Name _____   Date _____

1. Divide. Rewrite each expression as a division sentence with a fraction divisor, and fill in the blanks. The first one is done for you.

Example: $2 \div 0.1 = 2 \div \dfrac{1}{10} = 20$

There are __10__ tenths in 1 whole.

There are __20__ tenths in 2 wholes.

a. $5 \div 0.1$

There are _____ tenths in 1 whole.

There are _____ tenths in 5 wholes.

b. $8 \div 0.1$

There are _____ tenths in 1 whole.

There are _____ tenths in 8 wholes.

c. $5.2 \div 0.1$

There are _____ tenths in 5 wholes.

There are _____ tenths in 2 tenths.

There are _____ tenths in 5.2.

d. $8.7 \div 0.1$

There are _____ tenths in 8 wholes.

There are _____ tenths in 7 tenths.

There are _____ tenths in 8.7.

e. $5 \div 0.01$

There are _____ hundredths in 1 whole.

There are _____ hundredths in 5 wholes.

f. $8 \div 0.01$

There are _____ hundredths in 1 whole.

There are _____ hundredths in 8 wholes.

g. $5.2 \div 0.01$

There are _____ hundredths in 5 wholes.

There are _____ hundredths in 2 tenths.

There are _____ hundredths in 5.2.

h. $8.7 \div 0.01$

There are _____ hundredths in 8 wholes.

There are _____ hundredths in 7 tenths.

There are _____ hundredths in 8.7.

2. Divide.

a. $6 \div 0.1$	b. $18 \div 0.1$	c. $6 \div 0.01$
d. $1.7 \div 0.1$	e. $31 \div 0.01$	f. $11 \div 0.01$
g. $125 \div 0.1$	h. $3.74 \div 0.01$	i. $12.5 \div 0.01$

3. Yung bought $4.60 worth of bubble gum. Each piece of gum cost $0.10. How many pieces of bubble gum did Yung buy?

4. Cheryl solved a problem: $84 \div 0.01 = 8,400$.

   Jane said, "Your answer is wrong because when you divide, the quotient is always smaller than the whole amount you start with, for example, $6 \div 2 = 3$ and $100 \div 4 = 25$." Who is correct? Explain your thinking.

5. The U.S. Mint sells 2 ounces of American Eagle gold coins to a collector. Each coin weighs one-tenth of an ounce. How many gold coins were sold to the collector?

EUREKA MATH

Lesson 29: Connect division by a unit fraction to division by 1 tenth and 1 hundredth.

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Name _____   Date _____

1. Divide. Rewrite each expression as a division sentence with a fraction divisor, and fill in the blanks. The first one is done for you.

Example: $4 \div 0.1 = 4 \div \frac{1}{10} = 40$

There are ___10___ tenths in 1 whole.

There are ___40___ tenths in 4 wholes.

a. $9 \div 0.1$

There are _____ tenths in 1 whole.

There are _____ tenths in 9 wholes.

b. $6 \div 0.1$

There are _____ tenths in 1 whole.

There are _____ tenths in 6 wholes.

c. $3.6 \div 0.1$

There are _____ tenths in 3 wholes.

There are _____ tenths in 6 tenths.

There are _____ tenths in 3.6.

d. $12.8 \div 0.1$

There are _____ tenths in 12 wholes.

There are _____ tenths in 8 tenths.

There are _____ tenths in 12.8.

e. $3 \div 0.01$

There are _____ hundredths in 1 whole.

There are _____ hundredths in 3 wholes.

f. $7 \div 0.01$

There are _____ hundredths in 1 whole.

There are _____ hundredths in 7 wholes.

g. $4.7 \div 0.01$

There are _____ hundredths in 4 wholes.

There are _____ hundredths in 7 tenths.

There are _____ hundredths in 4.7.

h. $11.3 \div 0.01$

There are _____ hundredths in 11 wholes.

There are _____ hundredths in 3 tenths.

There are _____ hundredths in 11.3.

2. Divide.

a. $2 \div 0.1$	b. $23 \div 0.1$	c. $5 \div 0.01$
d. $7.2 \div 0.1$	e. $51 \div 0.01$	f. $31 \div 0.1$
g. $231 \div 0.1$	h. $4.37 \div 0.01$	i. $24.5 \div 0.01$

3. Giovanna is charged $0.01 for each text message she sends. Last month, her cell phone bill included a $12.60 charge for text messages. How many text messages did Giovanna send?

4. Geraldine solved a problem: $68.5 \div 0.01 = 6,850$.

   Ralph said, "This is wrong because a quotient can't be greater than the whole you start with. For example, $8 \div 2 = 4$ and $250 \div 5 = 50$." Who is correct? Explain your thinking.

5. The price for an ounce of gold on September 23, 2013, was $1,326.40. A group of 10 friends decide to equally share the cost of 1 ounce of gold. How much money will each friend pay?

EUREKA MATH

Lesson 29: Connect division by a unit fraction to division by 1 tenth and 1 hundredth.

engage^ny

444

Name _____   Date _____

1. 8.3 is equal to

   _____ tenths

   _____ hundredths

2. 28 is equal to

   _____ hundredths

   _____ tenths

3. $15.09 \div 0.01 =$ _____

4. $267.4 \div \frac{1}{10} =$ _____

5. $632.98 \div \frac{1}{100} =$ _____

EUREKA MATH™

Lesson 29:   Connect division by a unit fraction to division by 1 tenth and 1 hundredth.

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A

Number Correct: _____

Divide Whole Numbers by Fractions and Fractions by Whole Numbers

1.	$\frac{1}{2} \div 2 =$		23.	$4 \div \frac{1}{4} =$	
2.	$\frac{1}{2} \div 3 =$		24.	$\frac{1}{3} \div 3 =$	
3.	$\frac{1}{2} \div 4 =$		25.	$\frac{2}{3} \div 3 =$	
4.	$\frac{1}{2} \div 7 =$		26.	$\frac{1}{4} \div 2 =$	
5.	$7 \div \frac{1}{2} =$		27.	$\frac{3}{4} \div 2 =$	
6.	$6 \div \frac{1}{2} =$		28.	$\frac{1}{5} \div 2 =$	
7.	$5 \div \frac{1}{2} =$		29.	$\frac{3}{5} \div 2 =$	
8.	$3 \div \frac{1}{2} =$		30.	$\frac{1}{6} \div 2 =$	
9.	$2 \div \frac{1}{5} =$		31.	$\frac{5}{6} \div 2 =$	
10.	$3 \div \frac{1}{5} =$		32.	$\frac{5}{6} \div 3 =$	
11.	$4 \div \frac{1}{5} =$		33.	$\frac{1}{6} \div 3 =$	
12.	$7 \div \frac{1}{5} =$		34.	$3 \div \frac{1}{6} =$	
13.	$\frac{1}{5} \div 7 =$		35.	$6 \div \frac{1}{6} =$	
14.	$\frac{1}{3} \div 2 =$		36.	$7 \div \frac{1}{7} =$	
15.	$2 \div \frac{1}{3} =$		37.	$8 \div \frac{1}{8} =$	
16.	$\frac{1}{4} \div 2 =$		38.	$9 \div \frac{1}{9} =$	
17.	$2 \div \frac{1}{4} =$		39.	$\frac{1}{8} \div 7 =$	
18.	$\frac{1}{5} \div 2 =$		40.	$9 \div \frac{1}{8} =$	
19.	$2 \div \frac{1}{5} =$		41.	$\frac{1}{8} \div 7 =$	
20.	$3 \div \frac{1}{4} =$		42.	$7 \div \frac{1}{6} =$	
21.	$\frac{1}{4} \div 3 =$		43.	$9 \div \frac{1}{7} =$	
22.	$\frac{1}{4} \div 4 =$		44.	$\frac{1}{8} \div 9 =$	

EUREKA MATH™

Lesson 30:   Divide decimal dividends by non-unit decimal divisors.

engage^{ny}

B

Divide Whole Numbers by Fractions and Fractions by Whole Numbers

1.	$\frac{1}{2} \div 2 =$		23.	$3 \div \frac{1}{3} =$	
2.	$\frac{1}{5} \div 3 =$		24.	$\frac{1}{4} \div 4 =$	
3.	$\frac{1}{5} \div 4 =$		25.	$\frac{3}{4} \div 4 =$	
4.	$\frac{1}{5} \div 7 =$		26.	$\frac{1}{3} \div 3 =$	
5.	$7 \div \frac{1}{5} =$		27.	$\frac{2}{3} \div 3 =$	
6.	$6 \div \frac{1}{5} =$		28.	$\frac{1}{6} \div 2 =$	
7.	$5 \div \frac{1}{5} =$		29.	$\frac{5}{6} \div 2 =$	
8.	$3 \div \frac{1}{5} =$		30.	$\frac{1}{5} \div 5 =$	
9.	$2 \div \frac{1}{2} =$		31.	$\frac{3}{5} \div 5 =$	
10.	$3 \div \frac{1}{2} =$		32.	$\frac{3}{5} \div 4 =$	
11.	$4 \div \frac{1}{2} =$		33.	$\frac{1}{5} \div 6 =$	
12.	$7 \div \frac{1}{2} =$		34.	$6 \div \frac{1}{5} =$	
13.	$\frac{1}{2} \div 7 =$		35.	$6 \div \frac{1}{4} =$	
14.	$\frac{1}{4} \div 2 =$		36.	$7 \div \frac{1}{6} =$	
15.	$2 \div \frac{1}{4} =$		37.	$8 \div \frac{1}{7} =$	
16.	$\frac{1}{3} \div 2 =$		38.	$9 \div \frac{1}{8} =$	
17.	$2 \div \frac{1}{3} =$		39.	$\frac{1}{8} \div 8 =$	
18.	$\frac{1}{2} \div 2 =$		40.	$9 \div \frac{1}{9} =$	
19.	$2 \div \frac{1}{2} =$		41.	$\frac{1}{9} \div 8 =$	
20.	$4 \div \frac{1}{3} =$		42.	$7 \div \frac{1}{7} =$	
21.	$\frac{1}{3} \div 4 =$		43.	$9 \div \frac{1}{6} =$	
22.	$\frac{1}{3} \div 3 =$		44.	$\frac{1}{8} \div 6 =$	

Name _____ Date _____

1. Rewrite the division expression as a fraction and divide. The first two have been started for you.

a. $2.7 \div 0.3 = \dfrac{2.7}{0.3}$ $= \dfrac{2.7 \times 10}{0.3 \times 10}$ $= \dfrac{27}{3}$ $= 9$	b. $2.7 \div 0.03 = \dfrac{2.7}{0.03}$ $= \dfrac{2.7 \times 100}{0.03 \times 100}$ $= \dfrac{270}{3}$ $=$
c. $3.5 \div 0.5$	d. $3.5 \div 0.05$
e. $4.2 \div 0.7$	f. $0.42 \div 0.07$

Lesson 30:   Divide decimal dividends by non-unit decimal divisors.

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g. 10.8 ÷ 0.9	h. 1.08 ÷ 0.09
i. 3.6 ÷ 1.2	j. 0.36 ÷ 0.12
k. 17.5 ÷ 2.5	l. 1.75 ÷ 0.25

2. 15 ÷ 3 = 5. Explain why it is true that 1.5 ÷ 0.3 and 0.15 ÷ 0.03 have the same quotient.

3. Mr. Volok buys 2.4 kg of sugar for his bakery.

   a. If he pours 0.2 kg of sugar into separate bags, how many bags of sugar can he make?

   b. If he pours 0.4 kg of sugar into separate bags, how many bags of sugar can he make?

4. Two wires, one 17.4 meters long and one 7.5 meters long, were cut into pieces 0.3 meters long. How many such pieces can be made from both wires?

5. Mr. Smith has 15.6 pounds of oranges to pack for shipment. He can ship 2.4 pounds of oranges in a large box and 1.2 pounds in a small box. If he ships 5 large boxes, what is the minimum number of small boxes required to ship the rest of the oranges?

EUREKA MATH™

Lesson 30: Divide decimal dividends by non-unit decimal divisors.

engage^ny

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Name _____ Date _____

1. Rewrite the division expression as a fraction and divide. The first two have been started for you.

a. $2.4 \div 0.8 = \dfrac{2.4}{0.8}$ $\quad = \dfrac{2.4 \times 10}{0.8 \times 10}$ $\quad = \dfrac{24}{8}$ $\quad =$	b. $2.4 \div 0.08 = \dfrac{2.4}{0.08}$ $\quad = \dfrac{2.4 \times 100}{0.08 \times 100}$ $\quad = \dfrac{240}{8}$ $\quad =$
c. $4.8 \div 0.6$	d. $0.48 \div 0.06$
e. $8.4 \div 0.7$	f. $0.84 \div 0.07$

g. $4.5 \div 1.5$	h. $0.45 \div 0.15$
i. $14.4 \div 1.2$	j. $1.44 \div 0.12$

2. Leann says $18 \div 6 = 3$, so $1.8 \div 0.6 = 0.3$ and $0.18 \div 0.06 = 0.03$. Is Leann correct? Explain how to solve these division problems.

3. Denise is making bean bags. She has 6.4 pounds of beans.

    a.   If she makes each bean bag 0.8 pounds, how many bean bags will she be able to make?

    b.   If she decides instead to make mini bean bags that are half as heavy, how many can she make?

4. A restaurant's small salt shakers contain 0.6 ounces of salt. Its large shakers hold twice as much. The shakers are filled from a container that has 18.6 ounces of salt. If 8 large shakers are filled, how many small shakers can be filled with the remaining salt?

Name _____ Date _____

Rewrite the division expression as a fraction and divide.

a. $3.2 \div 0.8$	b. $3.2 \div 0.08$
c. $7.2 \div 0.9$	d. $0.72 \div 0.09$

EUREKA MATH

Lesson 30:   Divide decimal dividends by non-unit decimal divisors.

engage^ny   458

Name _____   Date _____

1. Estimate and then divide. An example has been done for you.

$78.4 \div 0.7 \approx 770 \div 7 = 110$

$$= \frac{78.4}{0.7}$$

$$= \frac{78.4 \times 10}{0.7 \times 10}$$

$$= \frac{784}{7}$$

$$= 112$$

```
      1 1 2
  7 | 7 8 4
      -7
       8
      -7
      1 4
     -1 4
        0
```

   a. $53.2 \div 0.4 \approx$

   b. $1.52 \div 0.8 \approx$

2. Estimate and then divide. The first one has been done for you.

$7.32 \div 0.06 \approx 720 \div 6 = 120$

$$= \frac{7.32}{0.06}$$

$$= \frac{7.32 \times 100}{0.06 \times 100}$$

$$= \frac{732}{6}$$

$$= 122$$

```
      1 2 2
  6 | 7 3 2
      -6
      1 3
     -1 2
       1 2
      -1 2
         0
```

   a. $9.42 \div 0.03 \approx$

   b. $39.36 \div 0.96 \approx$

3. Solve using the standard algorithm. Use the thought bubble to show your thinking as you rename the divisor as a whole number.

a. $46.2 \div 0.3 =$ _____ $3 \overline{\smash{)}462}$	b. $3.16 \div 0.04 =$ _____
$= \dfrac{46.2}{0.3} = \dfrac{462}{3} = 154$	
c. $2.31 \div 0.3 =$ _____	d. $15.6 \div 0.24 =$ _____

4. The total distance of a race is 18.9 km.

   a. If volunteers set up a water station every 0.7 km, including one at the finish line, how many stations will they have?

   b. If volunteers set up a first aid station every 0.9 km, including one at the finish line, how many stations will they have?

5. In a laboratory, a technician combines a salt solution contained in 27 test tubes. Each test tube contains 0.06 liter of the solution. If he divides the total amount into test tubes that hold 0.3 liter each, how many test tubes will he need?

EUREKA MATH

Lesson 31:   Divide decimal dividends by non-unit decimal divisors.

engageny   471

Name _____   Date _____

1. Estimate and then divide. An example has been done for you.

$78.4 \div 0.7 \approx 770 \div 7 = 110$

$= \dfrac{78.4}{0.7}$

$= \dfrac{78.4 \times 10}{0.7 \times 10}$

$= \dfrac{784}{7}$

$= 112$

```
      1 1 2
   7 | 7 8 4
       -7
        8
       -7
       1 4
      -1 4
         0
```

   a. $61.6 \div 0.8 \approx$ b. $5.74 \div 0.7 \approx$

2. Estimate and then divide. An example has been done for you.
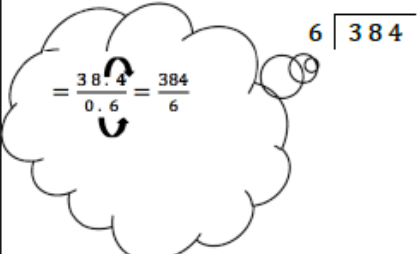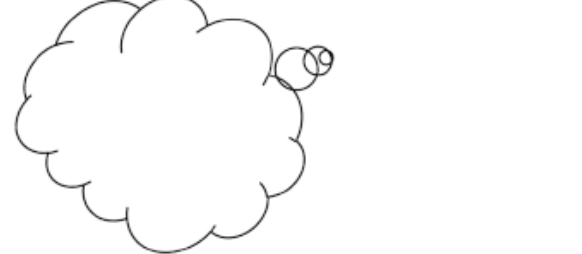
$7.32 \div 0.06 \approx 720 \div 6 = 120$

$= \dfrac{7.32}{0.06}$

$= \dfrac{7.32 \times 100}{0.06 \times 100}$

$= \dfrac{732}{6}$

$= 122$

```
      1 2 2
   6 | 7 3 2
       -6
       1 3
      -1 2
        1 2
       -1 2
         0
```

   a. $4.74 \div 0.06 \approx$ b. $19.44 \div 0.54 \approx$

EUREKA MATH™

| Lesson 31: | Divide decimal dividends by non-unit decimal divisors. |

engage^{ny}

3. Solve using the standard algorithm. Use the thought bubble to show your thinking as you rename the divisor as a whole number.

a. $38.4 \div 0.6 =$ _____	b. $7.52 \div 0.08 =$ _____
$6 \overline{)384}$ $= \dfrac{38.4}{0.6} = \dfrac{384}{6}$	
c. $12.45 \div 0.5 =$ _____	d. $5.6 \div 0.16 =$ _____

4. Lucia is making a 21.6 centimeter beaded string to hang in the window. She decides to put a green bead every 0.4 centimeters and a purple bead every 0.6 centimeters. How many green beads and how many purple beads will she need?

5. A group of 14 friends collects 0.7 pound of blueberries and decides to make blueberry muffins. They put 0.05 pound of berries in each muffin. How many muffins can they make if they use all the blueberries they collected?

EUREKA MATH™

Lesson 31:   Divide decimal dividends by non-unit decimal divisors.

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Name _____   Date _____

Estimate first, and then solve using the standard algorithm. Show how you rename the divisor as a whole number.

1. $6.39 \div 0.09$

2. $82.14 \div 0.6$

EUREKA MATH

Lesson 31:   Divide decimal dividends by non-unit decimal divisors.

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Name _____   **Date** _____

1. Circle the expression equivalent to *the sum of 3 and 2 divided by* $\frac{1}{3}$.

   $\frac{3+2}{3}$ $3 + (2 \div \frac{1}{3})$ $(3 + 2) \div \frac{1}{3}$ $\frac{1}{3} \div (3 + 2)$

2. Circle the expression(s) equivalent to *28 divided by the difference between* $\frac{4}{5}$ *and* $\frac{7}{10}$.

   $28 \div \left(\frac{4}{5} - \frac{7}{10}\right)$ $\frac{28}{\frac{4}{5} - \frac{7}{10}}$ $\left(\frac{4}{5} - \frac{7}{10}\right) \div 28$ $28 \div \left(\frac{7}{10} - \frac{4}{5}\right)$

3. Fill in the chart by writing an equivalent numerical expression.

a.	Half as much as the difference between $2\frac{1}{4}$ and $\frac{3}{8}$.	
b.	The difference between $2\frac{1}{4}$ and $\frac{3}{8}$ divided by 4.	
c.	A third of the sum of $\frac{7}{8}$ and 22 tenths.	
d.	Add 2.2 and $\frac{7}{8}$, and then triple the sum.	

4. Compare expressions 3(a) and 3(b). Without evaluating, identify the expression that is greater. Explain how you know.

5. Fill in the chart by writing an equivalent expression in word form.

a.		$\frac{3}{4} \times (1.75 + \frac{3}{5})$
b.		$\frac{7}{9} - (\frac{1}{8} \times 0.2)$
c.		$(1.75 + \frac{3}{5}) \times \frac{4}{3}$
d.		$2 \div (\frac{1}{2} \times \frac{4}{5})$

6. Compare the expressions in 5(a) and 5(c). Without evaluating, identify the expression that is less. Explain how you know.

7. Evaluate the following expressions.

a. $(9 - 5) \div \frac{1}{3}$

b. $\frac{5}{3} \times (2 \times \frac{1}{4})$

c. $\frac{1}{3} \div (1 \div \frac{1}{4})$

d. $\frac{1}{2} \times \frac{3}{5} \times \frac{5}{3}$

e. Half as much as $(\frac{3}{4} \times 0.2)$

f. 3 times as much as the quotient of 2.4 and 0.6

8. Choose an expression below that matches the story problem, and write it in the blank.

$\frac{2}{3} \times (20 - 5)$ $(\frac{2}{3} \times 20) - (\frac{2}{3} \times 5)$ $\frac{2}{3} \times 20 - 5$ $(20 - \frac{2}{3}) - 5$

a. Farmer Green picked 20 carrots. He cooked $\frac{2}{3}$ of them, and then gave 5 to his rabbits. Write the expression that tells how many carrots he had left.

Expression: _____

b. Farmer Green picked 20 carrots. He cooked 5 of them, and then gave $\frac{2}{3}$ of the remaining carrots to his rabbits. Write the expression that tells how many carrots the rabbits will get.

Expression: _____

Name _____ Date _____

1. Circle the expression equivalent to *the difference between 7 and 4, divided by a fifth.*

    $7 + (4 \div \frac{1}{5})$ $\frac{7-4}{5}$ $(7-4) \div \frac{1}{5}$ $\frac{1}{5} \div (7-4)$

2. Circle the expression(s) equivalent to *42 divided by the sum of $\frac{2}{3}$ and $\frac{3}{4}$.*

    $(\frac{2}{3} + \frac{3}{4}) \div 42$ $(42 \div \frac{2}{3}) + \frac{3}{4}$ $42 \div (\frac{2}{3} + \frac{3}{4})$ $\frac{42}{\frac{2}{8} + \frac{8}{4}}$

3. Fill in the chart by writing the equivalent numerical expression or expression in word form.

	Expression in word form	Numerical expression
a.	A fourth as much as the sum of $3\frac{1}{8}$ and 4.5	
b.		$(3\frac{1}{8} + 4.5) \div 5$
c.	Multiply $\frac{3}{5}$ by 5.8; then halve the product	
d.		$\frac{1}{6} \times (4.8 - \frac{1}{2})$
e.		$8 - (\frac{1}{2} \div 9)$

4. Compare the expressions in 3(a) and 3(b). Without evaluating, identify the expression that is greater. Explain how you know.

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Lesson 32: Interpret and evaluate numerical expressions including the language of scaling and fraction division.

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5. Evaluate the following expressions.

a. $(11-6) \div \frac{1}{6}$

b. $\frac{9}{5} \times (4 \times \frac{1}{6})$

c. $\frac{1}{10} \div (5 \div \frac{1}{2})$

d. $\frac{3}{4} \times \frac{2}{5} \times \frac{4}{3}$

e. 50 divided by the difference between $\frac{3}{4}$ and $\frac{5}{8}$

6. Lee is sending out 32 birthday party invitations. She gives 5 invitations to her mom to give to family members. Lee mails a third of the rest, and then she takes a break to walk her dog.

a. Write a numerical expression to describe how many invitations Lee has already mailed.

b. Which expression matches how many invitations still need to be sent out?

$32 - 5 - \frac{1}{3}(32-5)$ $\frac{2}{3} \times 32 - 5$ $(32-5) \div \frac{1}{3}$ $\frac{1}{3} \times (32-5)$

Name _____   Date _____

1. Write an equivalent expression in numerical form.

   A fourth as much as the product of two-thirds and 0.8

2. Write an equivalent expression in word form.

   a. $\frac{3}{8} \times (1 - \frac{1}{3})$

   b. $(1 - \frac{1}{3}) \div 2$

3. Compare the expressions in 2(a) and 2(b). Without evaluating, determine which expression is greater, and explain how you know.

A

Number Correct: _____

Divide Decimals

1.	$1 \div 1 =$		23.	$5 \div 0.1 =$	
2.	$1 \div 0.1 =$		24.	$0.5 \div 0.1 =$	
3.	$2 \div 0.1 =$		25.	$0.05 \div 0.1 =$	
4.	$7 \div 0.1 =$		26.	$0.08 \div 0.1 =$	
5.	$1 \div 0.1 =$		27.	$4 \div 0.01 =$	
6.	$10 \div 0.1 =$		28.	$40 \div 0.01 =$	
7.	$20 \div 0.1 =$		29.	$47 \div 0.01 =$	
8.	$60 \div 0.1 =$		30.	$59 \div 0.01 =$	
9.	$1 \div 1 =$		31.	$3 \div 0.1 =$	
10.	$1 \div 0.1 =$		32.	$30 \div 0.1 =$	
11.	$10 \div 0.1 =$		33.	$32 \div 0.1 =$	
12.	$100 \div 0.1 =$		34.	$32.5 \div 0.1 =$	
13.	$200 \div 0.1 =$		35.	$25 \div 5 =$	
14.	$800 \div 0.1 =$		36.	$2.5 \div 0.5 =$	
15.	$1 \div 0.1 =$		37.	$2.5 \div 0.05 =$	
16.	$1 \div 0.01 =$		38.	$3.6 \div 0.04 =$	
17.	$2 \div 0.01 =$		39.	$32 \div 0.08 =$	
18.	$9 \div 0.01 =$		40.	$56 \div 0.7 =$	
19.	$5 \div 0.01 =$		41.	$77 \div 1.1 =$	
20.	$50 \div 0.01 =$		42.	$4.8 \div 0.12 =$	
21.	$60 \div 0.01 =$		43.	$4.84 \div 0.4 =$	
22.	$20 \div 0.01 =$		44.	$9.63 \div 0.03 =$	

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Lesson 33: Create story contexts for numerical expressions and tape diagrams, and solve word problems.

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B

Number Correct: _____

Improvement: _____

Divide Decimals

1.	10 ÷ 1 =		23.	4 ÷ 0.1 =	
2.	1 ÷ 0.1 =		24.	0.4 ÷ 0.1 =	
3.	2 ÷ 0.1 =		25.	0.04 ÷ 0.1 =	
4.	8 ÷ 0.1 =		26.	0.07 ÷ 0.1 =	
5.	1 ÷ 0.1 =		27.	5 ÷ 0.01 =	
6.	10 ÷ 0.1 =		28.	50 ÷ 0.01 =	
7.	20 ÷ 0.1 =		29.	53 ÷ 0.01 =	
8.	70 ÷ 0.1 =		30.	68 ÷ 0.01 =	
9.	1 ÷ 1 =		31.	2 ÷ 0.1 =	
10.	1 ÷ 0.1 =		32.	20 ÷ 0.1 =	
11.	10 ÷ 0.1 =		33.	23 ÷ 0.1 =	
12.	100 ÷ 0.1 =		34.	23.6 ÷ 0.1 =	
13.	200 ÷ 0.1 =		35.	15 ÷ 5 =	
14.	900 ÷ 0.1 =		36.	1.5 ÷ 0.5 =	
15.	1 ÷ 0.1 =		37.	1.5 ÷ 0.05 =	
16.	1 ÷ 0.01 =		38.	3.2 ÷ 0.04 =	
17.	2 ÷ 0.01 =		39.	28 ÷ 0.07 =	
18.	7 ÷ 0.01 =		40.	42 ÷ 0.6 =	
19.	4 ÷ 0.01 =		41.	88 ÷ 1.1 =	
20.	40 ÷ 0.01 =		42.	3.6 ÷ 0.12 =	
21.	50 ÷ 0.01 =		43.	3.63 ÷ 0.3 =	
22.	80 ÷ 0.01 =		44.	8.44 ÷ 0.04 =	

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Name _____   Date _____

1. Ms. Hayes has $\frac{1}{2}$ liter of juice. She distributes it equally to 6 students in her tutoring group.

    a. How many liters of juice does each student get?

    b. How many more liters of juice will Ms. Hayes need if she wants to give each of the 24 students in her class the same amount of juice found in Part (a)?

2. Lucia has 3.5 hours left in her workday as a car mechanic. Lucia needs $\frac{1}{2}$ of an hour to complete one oil change.

    a. How many oil changes can Lucia complete during the rest of her workday?

    b. Lucia can complete two car inspections in the same amount of time it takes her to complete one oil change. How long does it take her to complete one car inspection?

    c. How many inspections can she complete in the rest of her workday?

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3. Carlo buys $14.40 worth of grapefruit. Each grapefruit costs $0.80.

   a. How many grapefruits does Carlo buy?

   b. At the same store, Kahri spends one-third as much money on grapefruits as Carlo. How many grapefruits does she buy?

4. Studies show that a typical giant hummingbird can flap its wings once in 0.08 of a second.

   a. While flying for 7.2 seconds, how many times will a typical giant hummingbird flap its wings?

   b. A ruby-throated hummingbird can flap its wings 4 times faster than a giant hummingbird. How many times will a ruby-throated hummingbird flap its wings in the same amount of time?

5. Create a story context for the following expression.

$$\frac{1}{3} \times (\$20 - \$3.20)$$

6. Create a story context about painting a wall for the following tape diagram.

Name _____   Date _____

1. Chase volunteers at an animal shelter after school, feeding and playing with the cats.

    a. If he can make 5 servings of cat food from a third of a kilogram of food, how much does one serving weigh?

    b. If Chase wants to give this same serving size to each of 20 cats, how many kilograms of food will he need?

2. Anouk has 4.75 pounds of meat. She uses a quarter pound of meat to make one hamburger.

    a. How many hamburgers can Anouk make with the meat she has?

    b. Sometimes Anouk makes sliders. Each slider is half as much meat as is used for a regular hamburger. How many sliders could Anouk make with the 4.75 pounds?

3. Ms. Geronimo has a $10 gift certificate to her local bakery.

   a. If she buys a slice of pie for $2.20 and uses the rest of the gift certificate to buy chocolate macaroons that cost $0.60 each, how many macaroons can Ms. Geronimo buy?

   b. If she changes her mind and instead buys a loaf of bread for $4.60 and uses the rest to buy cookies that cost $1\frac{1}{2}$ times as much as the macaroons, how many cookies can she buy?

4. Create a story context for the following expressions.

   a. $(5\frac{1}{4} - 2\frac{1}{8}) \div 4$

   b. $4 \times (\frac{4.8}{0.8})$

5. Create a story context for the following tape diagram.

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Name _____   Date _____

An entire commercial break is 3.6 minutes.

    a.   If each commercial takes 0.6 minutes, how many commercials will be played?

    b.   A different commercial break of the same length plays commercials half as long. How many commercials will play during this break?

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