Chapter 4

School-Home Letter

Dear Family,

Throughout the next few weeks, our math class will be learning about decimal multiplication. We will also be learning how to estimate decimal products.

You can expect to see homework that involves multiplication of decimals.

Here is a sample of how your child will be taught to multiply decimals.

Vocabulary

decimal A number with one or more digits to the right of the decimal point

expanded form A way to write numbers by showing the value of each digit

product The answer to a multiplication problem

MODEL Multiply Decimals

Multiply. 3.2×4.17

STEP 1

Estimate.

3.2×4.17

$\downarrow \quad \downarrow$

$3 \times 4 = 12$

STEP 2

Multiply as with whole numbers.

$$\begin{array}{r} {\scriptstyle 2\ \ } \\ {\scriptstyle 1\ \ } \\ 417 \\ \times\ 32 \\ \hline 834 \\ +12{,}510 \\ \hline 13{,}344 \end{array}$$

STEP 3

Use the estimate to place the decimal point.

$3.2 \times 4.17 = 13.344$

Think: The product should be close to the estimate.

Tips

Placing the Decimal Point

To help place the decimal point in the product, add the number of decimal places in each factor.

For example, since 4.17 has 2 decimal places and 3.2 has 1 decimal place, the product will have $2 + 1$, or 3 decimal places.

Activity

A trip to the grocery store or the gas station is a perfect opportunity to practice decimal operations. For example, "We bought 8.6 gallons of gasoline that cost $2.95 per gallon. What was the total cost?" Work together to write a multiplication sentence with decimals that represents the situation. Then estimate before multiplying to find the exact product.

Name _____

Multiplication Patterns with Decimals

COMMON CORE STANDARD—5.NBT.2
Understand the place value system.

Complete the pattern.

1. $2.07 \times 1 =$ 2.07
$2.07 \times 10 =$ 20.7
$2.07 \times 100 =$ 207
$2.07 \times 1{,}000 =$ 2,070

2. $1 \times 30 =$ _____
$0.1 \times 30 =$ _____
$0.01 \times 30 =$ _____

3. $10^0 \times 0.23 =$ _____
$10^1 \times 0.23 =$ _____
$10^2 \times 0.23 =$ _____
$10^3 \times 0.23 =$ _____

4. $390 \times 1 =$ _____
$390 \times 0.1 =$ _____
$390 \times 0.01 =$ _____

5. $10^0 \times 49.32 =$ _____
$10^1 \times 49.32 =$ _____
$10^2 \times 49.32 =$ _____
$10^3 \times 49.32 =$ _____

6. $1 \times 9{,}670 =$ _____
$0.1 \times 9{,}670 =$ _____
$0.01 \times 9{,}670 =$ _____

7. $874 \times 1 =$ _____
$874 \times 10 =$ _____
$874 \times 100 =$ _____
$874 \times 1{,}000 =$ _____

8. $10^0 \times 10 =$ _____
$10^1 \times 10 =$ _____
$10^2 \times 10 =$ _____
$10^3 \times 10 =$ _____

9. $1 \times 5 =$ _____
$0.1 \times 5 =$ _____
$0.01 \times 5 =$ _____

Problem Solving Real World

10. Nathan plants equal-sized squares of sod in his front yard. Each square has an area of 6 square feet. Nathan plants a total of 1,000 squares in his yard. What is the total area of the squares of sod?

_____

_____

11. Three friends are selling items at a bake sale. May makes $23.25 selling bread. Inez sells gift baskets and makes 100 times as much as May. Carolyn sells pies and makes one tenth of the money Inez makes. How much money does each friend make?

_____

_____

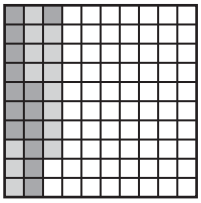
Name _____

Multiply Decimals and Whole Numbers

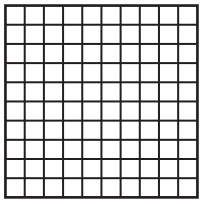
COMMON CORE STANDARD—5.NBT.7
Perform operations with multi-digit whole numbers and with decimals to hundredths.

Use the decimal model to find the product.

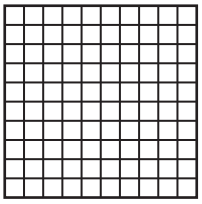
1. $4 \times 0.07 =$ 0.28



2. $3 \times 0.27 =$ _____



3. $2 \times 0.45 =$ _____



Find the product. Draw a quick picture.

4. $2 \times 0.8 =$ _____

5. $3 \times 0.33 =$ _____

6. $5 \times 0.71 =$ _____

7. $4 \times 0.23 =$ _____

Problem Solving Real World

8. In physical education class, Sonia walks a distance of 0.12 mile in 1 minute. At that rate, how far can she walk in 9 minutes?

9. A certain tree can grow 0.45 meter in one year. At that rate, how much can the tree grow in 3 years?

Name _____

Multiplication with Decimals and Whole Numbers

COMMON CORE STANDARDS—5.NBT.2, 5.NBT.7 *Perform operations with multi-digit whole numbers and with decimals to hundredths.*

Find the product.

Think: The place value of the decimal factor is tenths.

1. $\begin{array}{r} 5.2 \\ \times \quad 4 \\ \hline 20.8 \end{array}$

2. $\begin{array}{r} 9.8 \\ \times \quad 6 \\ \hline \end{array}$

3. $\begin{array}{r} 13.02 \\ \times \quad 5 \\ \hline \end{array}$

4. $\begin{array}{r} 8.42 \\ \times \quad 9 \\ \hline \end{array}$

5. $\begin{array}{r} 14.05 \\ \times \quad 7 \\ \hline \end{array}$

6. $\begin{array}{r} 23.82 \\ \times \quad 5 \\ \hline \end{array}$

7. 4×9.3

8. 3×7.9

9. 5×42.89

10. 8×2.6

11. 6×0.92

12. 9×1.04

13. 7×2.18

14. 3×19.54

Problem Solving Real World

15. A half-dollar coin issued by the United States Mint measures 30.61 millimeters across. Mikk has 9 half dollars. He lines them up end to end in a row. What is the total length of the row of half dollars?

_____

16. One pound of grapes costs $3.49. Linda buys exactly 3 pounds of grapes. How much will the grapes cost?

_____

Name _____

Multiply Using Expanded Form

COMMON CORE STANDARDS—5.NBT.2, 5.NBT.7 *Perform operations with multi-digit whole numbers and with decimals to hundredths.*

Draw a model to find the product.

1. $37 \times 9.5 =$ 351.5

	30	7
9	270	63
0.5	15	3.5

2. $84 \times 0.24 =$ _____

Find the product.

3. $13 \times 0.53 =$ _____

4. $27 \times 89.5 =$ _____

5. $32 \times 12.71 =$ _____

6. $17 \times 0.52 =$ _____

7. $23 \times 59.8 =$ _____

8. $61 \times 15.98 =$ _____

Problem Solving Real World

9. An object that weighs one pound on the moon will weigh about 6.02 pounds on Earth. Suppose a moon rock weighs 11 pounds on the moon. How much will the same rock weigh on Earth?

10. Tessa is on the track team. For practice and exercise, she runs 2.25 miles each day. At the end of 14 days, how many total miles will Tessa have run?

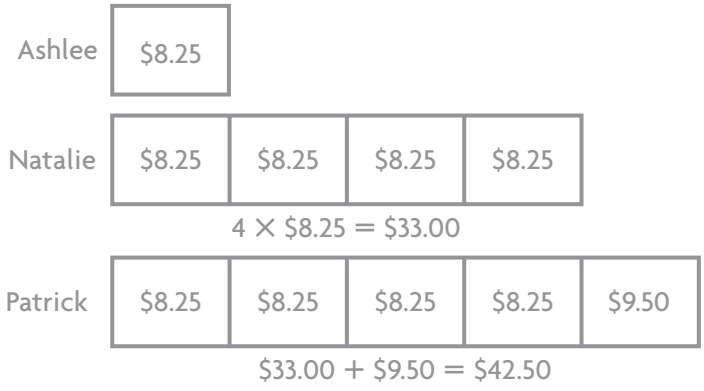
Name _____

Problem Solving • Multiply Money

COMMON CORE STANDARD—5.NBT.7
Perform operations with multi-digit whole numbers and with decimals to hundredths.

Solve each problem.

1. Three friends go to the local farmers' market. Ashlee spends $8.25. Natalie spends 4 times as much as Ashlee. Patrick spends $9.50 more than Natalie. How much does Patrick spend?



$42.50

2. Kimmy's savings account has a balance of $76.23 in June. By September, her balance is 5 times as much as her June balance. Between September and December, Kimmy deposits a total of $87.83 into her account. If she does not withdraw any money from her account, what should Kimmy's balance be in December?

_____

3. Amy raises $58.75 to participate in a walk-a-thon. Jeremy raises $23.25 more than Amy. Oscar raises 3 times as much as Jeremy. How much money does Oscar raise?

_____

4. It costs $5.50 per hour to rent a pair of ice skates, for up to 2 hours. After 2 hours, the rental cost per hour decreases to $2.50. How much does it cost to rent a pair of ice skates for 4 hours?

_____