

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.

$$3.2 \times 4.17$$

↓ ↓

$$3 \times 4 = 12$$

STEP 2

Multiply as with whole numbers.

$$\begin{array}{r} 2 \\ 1 \\ 3.2 \\ \times 4.17 \\ \hline 834 \\ +12,510 \\ \hline 13,344 \end{array}$$

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.

Carta para la casa

Querida familia,

Durante las próximas semanas, aprenderemos acerca de la multiplicación con números decimales. También aprenderemos a estimar productos decimales.

Llevaré a la casa tareas con multiplicaciones de decimales.

Este es un ejemplo de cómo vamos a multiplicar decimales.

Vocabulario

decimal Un número con uno o más dígitos a la derecha del punto decimal

forma desarrollada Una manera de escribir los números mostrando el valor de cada dígito

producto El resultado de una multiplicación

MODELO Multiplicar decimales

Multiplica. 3.2×4.17

PASO 1

Estima.

$$3.2 \times 4.17$$

↓ ↓

$$3 \times 4 = 12$$

PASO 2

Multiplica igual que con los números enteros.

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

PASO 3

Usa la estimación para poner el punto decimal.

$$3.2 \times 4.17 = 13.344$$

Piensa: El producto debe estar cerca de la estimación.

Pistas

Poner el punto decimal

Para poner el punto decimal en el producto, suma el número de lugares decimales en cada factor.

Por ejemplo, como 4.17 tiene 2 lugares decimales y 3.2 tiene 1, el producto tendrá 2 + 1, o 3 lugares decimales.

Actividad

Una visita a la tienda o a la gasolinera es una buena oportunidad para practicar operaciones con números decimales. Por ejemplo: "Compramos 8.6 galones de gasolina a \$2.95 por galón. ¿Cuál fue el precio total?" Trabajen juntos para escribir un enunciado de multiplicación con decimales que represente el evento. Después, estimen antes de multiplicar para hallar el producto exacto.

Name _____

Multiplication Patterns with Decimals

Complete the pattern.



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

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

2. $1 \times 30 = \underline{\hspace{2cm}}$
 $0.1 \times 30 = \underline{\hspace{2cm}}$
 $0.01 \times 30 = \underline{\hspace{2cm}}$

3. $10^0 \times 0.23 = \underline{\hspace{2cm}}$
 $10^1 \times 0.23 = \underline{\hspace{2cm}}$
 $10^2 \times 0.23 = \underline{\hspace{2cm}}$
 $10^3 \times 0.23 = \underline{\hspace{2cm}}$

4. $390 \times 1 = \underline{\hspace{2cm}}$
 $390 \times 0.1 = \underline{\hspace{2cm}}$
 $390 \times 0.01 = \underline{\hspace{2cm}}$

5. $10^0 \times 49.32 = \underline{\hspace{2cm}}$
 $10^1 \times 49.32 = \underline{\hspace{2cm}}$
 $10^2 \times 49.32 = \underline{\hspace{2cm}}$
 $10^3 \times 49.32 = \underline{\hspace{2cm}}$

6. $1 \times 9,670 = \underline{\hspace{2cm}}$
 $0.1 \times 9,670 = \underline{\hspace{2cm}}$
 $0.01 \times 9,670 = \underline{\hspace{2cm}}$

7. $874 \times 1 = \underline{\hspace{2cm}}$
 $874 \times 10 = \underline{\hspace{2cm}}$
 $874 \times 100 = \underline{\hspace{2cm}}$
 $874 \times 1,000 = \underline{\hspace{2cm}}$

8. $10^0 \times 10 = \underline{\hspace{2cm}}$
 $10^1 \times 10 = \underline{\hspace{2cm}}$
 $10^2 \times 10 = \underline{\hspace{2cm}}$
 $10^3 \times 10 = \underline{\hspace{2cm}}$

9. $1 \times 5 = \underline{\hspace{2cm}}$
 $0.1 \times 5 = \underline{\hspace{2cm}}$
 $0.01 \times 5 = \underline{\hspace{2cm}}$

Problem Solving



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?

Lesson Check (5.NBT.2)

1. The length of the Titanic was 882 feet. Porter's history class is building a model of the Titanic. The model is $\frac{1}{100}$ of the actual length of the ship. How long is the model?

2. Ted is asked to multiply $10^2 \times 18.72$. How many places and in which direction should he move the decimal point to get the correct product?

Spiral Review (5.NBT.3b, 5.NBT.4, 5.NBT.6, 5.NBT.7)

3. The table shows the height in meters of some of the world's tallest buildings. What are the heights in order from least to greatest?

4. Madison had \$187.56 in her checking account. She deposited \$49.73 and then used her debit card to spend \$18.64. What is Madison's new account balance?

Building	Height (meters)
Zifeng Tower	457.2
International Finance Center	415.138
Burj Khalifa	828.142
Petronas Towers	452.018

5. What is 3.47 rounded to the nearest tenth?

6. The city gardener ordered 1,680 tulip bulbs for Riverside Park. The bulbs were shipped in 35 boxes with an equal number of bulbs in each box. How many tulip bulbs were in each box?

Name _____

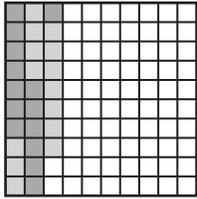
Multiply Decimals and Whole Numbers



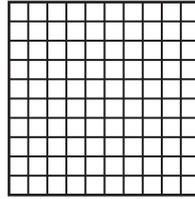
COMMON CORE STANDARD—5.NBT.7
Perform operations with multi-digit whole numbers and with decimals to hundredths.

Use the decimal model to find the product.

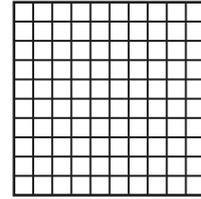
1. $4 \times 0.07 = \underline{0.28}$



2. $3 \times 0.27 = \underline{\hspace{2cm}}$



3. $2 \times 0.45 = \underline{\hspace{2cm}}$



Find the product. Draw a quick picture.

4. $2 \times 0.8 = \underline{\hspace{2cm}}$

5. $3 \times 0.33 = \underline{\hspace{2cm}}$

6. $5 \times 0.71 = \underline{\hspace{2cm}}$

7. $4 \times 0.23 = \underline{\hspace{2cm}}$

Problem Solving

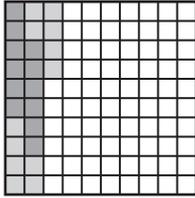


8. In physical education class, Sonia walks a distance of 0.12 mile in 1 minute. At that rate, how far can she walk in 9 minutes?

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

Lesson Check (5.NBT.7)

1. What multiplication sentence does the model represent?



2. A certain type of lunch meat contains 0.5 grams of unsaturated fat per serving. How much unsaturated fat is in 3 servings of the lunch meat?

Spiral Review (5.OA.1, 5.NBT.2, 5.NBT.3b, 5.NF.3)

3. To find the value of the following expression, what operation should you do first?

$$20 - (7 + 4) \times 5$$

4. Ella and three friends run in a relay race that is 14 miles long. Each person runs equal parts of the race. How many miles does each person run?

5. What symbol makes the statement true? Write $>$, $<$, or $=$.

$$17.518 \bigcirc 17.581$$

6. Each number in the following sequence has the same relationship to the number immediately before it. How can you find the next number in the sequence?

$$3, 30, 300, 3,000, \dots$$

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.

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

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

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

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

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

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

$$7. \quad 4 \times 9.3$$

$$8. \quad 3 \times 7.9$$

$$9. \quad 5 \times 42.89$$

$$10. \quad 8 \times 2.6$$

$$11. \quad 6 \times 0.92$$

$$12. \quad 9 \times 1.04$$

$$13. \quad 7 \times 2.18$$

$$14. \quad 3 \times 19.54$$

Problem Solving

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?

Lesson Check (5.NBT.2, 5.NBT.7)

1. Pete wants to make turkey sandwiches for two friends and himself. He wants each sandwich to contain 3.5 ounces of turkey. How many ounces of turkey does he need?

2. Gasoline costs \$3.37 per gallon. Mary's father puts 9 gallons of gasoline in the tank of his car. How much will the gasoline cost?

Spiral Review (5.OA.1, 5.OA.2, 5.NBT.6, 5.NBT.7)

3. A group of 5 boys and 8 girls goes to the fair. Admission costs \$9 per person. What expression can show the total amount the group will pay?

4. Sue and 4 friends buy a box of 362 baseball cards at a yard sale. If they share the cards equally, how many cards will each person receive?

5. Sarah rides her bicycle 2.7 miles to school. She takes a different route home, which is 2.5 miles. How many miles does Sarah ride to and from school each day?

6. Tim has a box of 15 markers. He gives 3 markers each to 4 friends. What expression can show the number of markers Tim has left?

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. $37 \times 9.5 = \underline{351.5}$

	30	7
9	270	63
0.5	15	3.5

2. $84 \times 0.24 = \underline{\hspace{2cm}}$

Find the product.

3. $13 \times 0.53 = \underline{\hspace{2cm}}$

4. $27 \times 89.5 = \underline{\hspace{2cm}}$

5. $32 \times 12.71 = \underline{\hspace{2cm}}$

6. $17 \times 0.52 = \underline{\hspace{2cm}}$

7. $23 \times 59.8 = \underline{\hspace{2cm}}$

8. $61 \times 15.98 = \underline{\hspace{2cm}}$

Problem Solving

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?

Lesson Check (5.NBT.2, 5.NBT.7)

1. A baker is going to make 24 blueberry pies. She wants to make sure each pie contains 3.5 cups of blueberries. How many cups of blueberries will she need?
2. Aaron buys postcards while he is on vacation. It costs \$0.28 to send one postcard. Aaron wants to send 12 postcards. How much will it cost Aaron to send all the postcards?

Spiral Review (5.NBT.1, 5.NBT.2, 5.NBT.6, 5.NBT.7)

3. What is the value of the digit 4 in the number 524,897,123?
4. How many zeros will be in the product $(6 \times 5) \times 10^3$?

5. Roast beef costs \$8.49 per pound. What is the cost of 2 pounds of roast beef?
6. North Ridge Middle School collected 5,022 cans of food for a food drive. Each of the 18 homerooms collected about the same number of cans. About how many cans did each homeroom collect?

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?

Ashlee	\$8.25				
Natalie	\$8.25	\$8.25	\$8.25	\$8.25	
	$4 \times \$8.25 = \33.00				
Patrick	\$8.25	\$8.25	\$8.25	\$8.25	\$9.50
	$\$33.00 + \$9.50 = \$42.50$				

\$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?

Lesson Check (5.NBT.7)

1. A family of two adults and four children is going to an amusement park. Admission is \$21.75 for adults and \$15.25 for children. What is the total cost of the family's admission?
2. Ms. Rosenbaum buys 5 crates of apples at the market. Each crate costs \$12.50. She also buys one crate of pears for \$18.75. What is the total cost of the apples and pears?

Spiral Review (5.OA.2, 5.NBT.2, 5.NBT.4, 5.NF.3)

3. How do you write $10 \times 10 \times 10 \times 10$ using exponents?
4. What number represents 125.638 rounded to the nearest hundredth?

5. The sixth-graders at Meadowbrook Middle School are going on a field trip. The 325 students and adults will ride in school buses. Each bus holds 48 people. How many school buses are needed?
6. A restaurant can seat 100 people. It has booths that seat 4 people and tables that seat 6 people. So far, 5 of the booths are full. What expression matches the situation?

Name _____

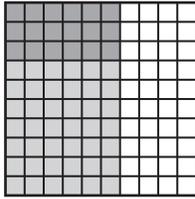
Decimal Multiplication



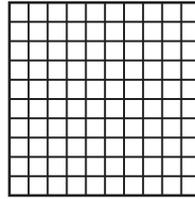
COMMON CORE STANDARD—5.NBT.7
Perform operations with multi-digit whole numbers and with decimals to hundredths.

Multiply. Use the decimal model.

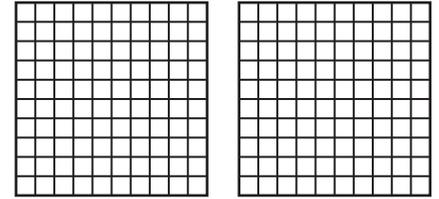
1. $0.3 \times 0.6 =$ 0.18



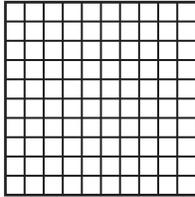
2. $0.2 \times 0.8 =$ _____



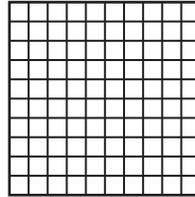
3. $0.5 \times 1.7 =$ _____



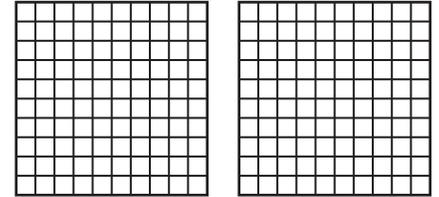
4. $0.6 \times 0.7 =$ _____



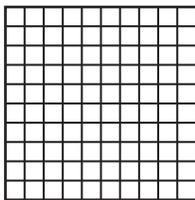
5. $0.8 \times 0.5 =$ _____



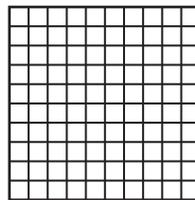
6. $0.4 \times 1.9 =$ _____



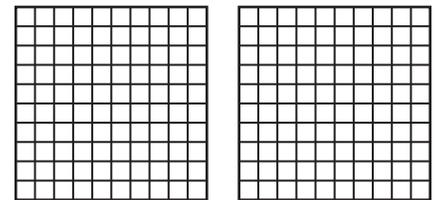
7. $0.8 \times 0.8 =$ _____



8. $0.2 \times 0.5 =$ _____



9. $0.8 \times 1.3 =$ _____



Problem Solving



10. A certain type of bamboo plant grows 1.2 feet in 1 day. At that rate, how many feet could the plant grow in 0.5 day?

11. The distance from the park to the grocery store is 0.9 mile. Ezra runs 8 tenths of that distance and walks the rest of the way. How far does Ezra run from the park to the grocery store?

Lesson Check (5.NBT.7)

1. Liz is hiking a trail that is 0.8 mile long. Liz hikes the first 2 tenths of the distance by herself. She hikes the rest of the way with her friends. How far does Liz hike by herself?
2. One cup of cooked zucchini has 1.9 grams of protein. How much protein is in 0.5 cup of zucchini?

Spiral Review (5.NBT.5, 5.NBT.6, 5.NBT.7)

3. What property does the statement show?

$$(4 \times 8) \times 3 = (8 \times 4) \times 3$$

4. At the beginning of the school year, Rochelle joins the school garden club. In her plot of land, she plants 4 rows of tulips, each containing 27 bulbs. How many tulip bulbs does Rochelle plant in all?

5. In which place is the first digit of the quotient?

$$3,589 \div 18$$

6. At a football game, Jasmine bought a soft pretzel for \$2.25 and a bottle of water for \$1.50. She paid with a \$5 bill. How much change should Jasmine get back?

Lesson Check (5.NBT.2, 5.NBT.7)

1. Sue buys material to make a costume. She buys 1.75 yards of red material. She buys 1.2 times as many yards of blue material. How many yards of blue material does Sue buy?
2. Last week Juan worked 20.5 hours. This week he works 1.5 times as many hours as he did last week. How many hours does Juan work this week?

Spiral Review (5.NBT.2, 5.NBT.3a, 5.NBT.3b, 5.NBT.7)

3. The expression below shows a number in expanded form. What is the standard form of the number?
4. Kelly buys a sweater for \$16.79 and a pair of pants for \$28.49. She pays with a \$50 bill. How much change should Kelly get back?

$$(2 \times 10) + (3 \times \frac{1}{10}) + (9 \times \frac{1}{100}) + (7 \times \frac{1}{1,000})$$

5. Elvira is using a pattern to multiply $10^3 \times 37.2$.
6. What digit should go in the box to make the following statement true?

$$10^0 \times 37.2 = 37.2$$

$$10^1 \times 37.2 = 372$$

$$10^2 \times 37.2 = 3,720$$

$$10^3 \times 37.2 = \underline{\hspace{2cm}}$$

What is the product $10^3 \times 37.2$?

$$63.749 < 63.\boxed{}2$$

Name _____

Zeros in the Product**COMMON CORE STANDARDS—5.NBT.7***Perform operations with multi-digit whole numbers and with decimals to hundredths.***Find the product.**

$$\begin{array}{r} 1. \quad 0.07 \\ \times 0.2 \\ \hline 0.014 \end{array}$$

(A wavy arrow points to the zero in the hundredths place of the product.)

$$\begin{array}{r} 7 \\ \times 2 \\ \hline 14 \end{array}$$

$$\begin{array}{r} 2. \quad 0.3 \\ \times 0.1 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 0.05 \\ \times 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 0.08 \\ \times 0.3 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 0.06 \\ \times 0.7 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 0.2 \\ \times 0.4 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 0.05 \\ \times 0.4 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 0.08 \\ \times 0.8 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad \$0.90 \\ \times 0.1 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 0.02 \\ \times 0.3 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 0.09 \\ \times 0.5 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad \$0.05 \\ \times 0.2 \\ \hline \end{array}$$

Problem Solving

- 13.** A beaker contains 0.5 liter of a solution. Jordan uses 0.08 of the solution for an experiment. How much of the solution does Jordan use?

- 14.** A certain type of nuts are on sale at \$0.35 per pound. Tamara buys 0.2 pound of nuts. How much will the nuts cost?

Lesson Check (5.NBT.2, 5.NBT.7)

1. Cliff multiplies 0.06 and 0.5. What product should he record?
2. What is the product of 0.4 and 0.09?

Spiral Review (5.NBT.1, 5.NBT.4, 5.NBT.5, 5.NBT.6)

3. A florist makes 24 bouquets. She uses 16 flowers for each bouquet. Altogether, how many flowers does she use?
4. Mark has 312 books in his bookcases. He has 11 times as many fiction books as nonfiction books. How many fiction books does Mark have?

5. Dwayne buys a pumpkin that weighs 12.65 pounds. To the nearest tenth of a pound, how much does the pumpkin weigh?
6. What is the value of the digit 6 in the number 896,000?
