Multiply and Divide Decimals

Name:

Prerequisite: Multiply Decimals to Hundredths

Study the example showing how to multiply a decimal by a decimal. Then solve problems 1–7.



- Explain why the factor 1.5 is broken into two numbers in the model.
- 2 What does each small square in the model represent?
- Begin How would the area model change if the factor 0.4 were changed to 1.4?

Use the situation below to solve problems 4–5.

Lisa walks at a speed of 3.25 miles per hour for 1.5 hours. How many miles does she walk in all?

4 Complete the area model that represents 1.5 \times 3.25.



5 Explain how you can use the area model to find the number of miles that Lisa walks.

6 Moira multiplies 1.8 by 2.4 and writes the product as 0.432. Tom says that her product is incorrect. How could Tom know this without multiplying the two numbers?

7 Andrew lives 1.7 kilometers from the soccer field. He rode his bike 0.9 of the distance to the field. How much farther does Andrew need to ride to reach the soccer field? Include an area model in your answer.

Show your work.

Solution: _

Lesson 10 Multiply and Divide Decimals

Multiply Decimals to Thousandths

Study the example problem showing how to multiply decimals to thousandths. Then solve problems 1–7.

Example

A scientist used 4.317 liters of a chemical for one experiment. She uses 1.75 times that amount for another experiment. How much of the chemical does the scientist use for the second experiment?

First, estimate. Because 4.317 is about 4 and 1.75 is about 2, the product will be about 4(2) = 8.

Multiply decimals as you would	4.317
multiply whole numbers.	× 1.75
Remember to place the decimal point in the product.	21585
	302190
	+ 431700
	7.55475

The scientist uses 7.55475 liters of the chemical for the second experiment.

- How does your estimate help you place the decimal point in the product?
- 2 How can you use fractions to place the decimal point in the product?
- 3 How does the number of decimal places in the factors relate to the number of decimal places in the product of the example?

4 Without multiplying, tell whether the product 0.644 \times 0.25 will be greater than 1 or less than 1? Explain how you know. Then find the product.

5 Selena drove at an average speed of 50.55 miles per hour for 1.75 hours. She stopped at a rest stop and then drove at an average speed of 45.2 miles per hour for 2.25 hours. Did Selena drive more miles before or after the rest stop? How many more miles?

Show your work.

Solution: _

6 Estimate the product of 23.725×6.25 . Then find the product. Why is it a good idea to estimate first?

7 Ellen walks dogs on weekends. She gets paid \$8.50 per hour. Each day she works 5 hours and 45 minutes. Does she earn more or less than \$85 in one weekend? How much more or less? Explain.

Divide by Decimals

Study the example problem showing how to divide by decimals. Then solve problems 1–7.

Example

Jamie has 4.2 pounds of dried fruit to put into bags. She puts 0.35 pound of fruit in each bag. How many bags of dried fruit does she have?

First, estimate. Because 4.2 is about 4 and 0.35 is about 0.4, the quotient is about 4 divided by 4 tenths, or 10.

Next, write the divisor as a whole number by multiplying it by a power of 10. Multiply the dividend by that same power. Then divide as you would with whole numbers.

10

		12
0.35)4.20	\longrightarrow	35)420
		— 35
		70
		- 70
		0
Jamie has 1	2 bags of	dried fruit.

- 1 Why was the divisor changed to a whole number?
- 2 How do you change 0.35 to a whole number?

3 Why must you multiply the dividend by the same power of 10 that you multiplied the divisor by to write it as a whole number?



5 Emma made a mistake when she divided 6.4 by 0.02. Describe her mistake and show the correct division.

32 0.02)6.4 2)64 - 6 4 - 4 0

6 Aaron paid \$9.75 for markers that cost \$0.75 each. He bought 4 times as many pencils for \$0.35 each. How much did Aaron pay for the pencils?

Show your work.

Solution: ____

7 Mei spent \$66 buying fabric that costs \$7.50 per yard. How many yards of fabric did Mei buy? How do you know that your answer is reasonable?

Divide Decimals

Study the example problem showing how to divide decimals by using an algorithm. Then solve problems 1–6.

Example

Tanisha rode her bike 19.625 miles in 2.5 hours. What was her average speed?

First, estimate. Because 19.625 is about 20, the quotient is about 20 divided by 2.5, or 8. Next divide 19.625 by 2.5.

		7.85
2.5) 19.625	\rightarrow	25)196.25
		— 175
		212
		- 200
		125
		- 125
		0

Tanisha's average speed was 7.85 miles per hour.

- In the example, the dividend and divisor were multiplied by what power of 10? Explain why they were multiplied by this power of 10.
- 2 Complete the equation to show that $19.625 \div 2.5$ is equivalent to $196.25 \div 25$.
 - $19.625 \div 2.5 =$
- 3 Would the quotient be the same if you multiplied the numerator and the denominator by 100? Explain.

Use the information below to solve problems 4–5.

Jake bought 14.5 pounds of dried navy beans for \$25.52.

4 Explain how to estimate the price per pound.

5 What is the price per pound of the beans? Explain how you know that your answer is reasonable.

Show your work.

Solution: _____

6 Jeff is training for a walkathon. He walked 8.84 miles at an average speed of 3.4 miles per hour. Then he walked for an additional 1.6 hours at the same speed. How many hours did Jeff walk in all?

Show your work.

Solution: _

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Name:

Multiply and Divide Decimals

Solve the problems.

1 A total of 6.825 inches of snow fell during a storm. The snow fell at an average rate of 1.3 inches per hour. For how many hours did the snow fall?

Show your work.



Solution: _____





What does each small square in the model represent?

