Name _____ Date _____ Class _____

LESSON 3-5

Reteach

Dividing Decimals and Integers by Decimals

To divide a decimal by a decimal:

Step 1: Make the divisor a whole number by moving the decimal point to the right.

Step 2: Move the decimal point in the dividend the same number of places. Remember to place the decimal in the quotient directly above the decimal point in the dividend.

Step 3: Divide.

Divide: $1.68 \div 0.3 \longrightarrow 0.3\overline{)1.68} \longrightarrow 3\overline{)16.8}$

$$\begin{array}{r} 5.6 \\ 3\overline{)16.8} \\ -15 \\ \hline 18 \\ -18 \\ \hline \end{array}$$

The divisor, 0.3, has 1 decimal place. Move the decimal point 1 place to the right in both the divisor and the dividend.

Complete.

1. $5.6\overline{)4.48}$

a. How many decimal places are in the divisor? _____

b. How many places do you need to move each decimal point? _____

c. Rewrite the division. _____

d. Complete the division. What is the quotient? _____

Divide.

2. $5.2\overline{)3.64}$

3. $0.09\overline{)36.45}$

4. $0.59\overline{)0.708}$

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Name _____ Date _____ Class _____

LESSON 3-5

Reteach

Dividing Decimals and Integers by Decimals (continued)

Sometimes it is necessary to write zeros in the dividend.

$6 \div 0.25 \longrightarrow 0.25\overline{)6} \longrightarrow 0.25\overline{)6.00} \longrightarrow 25\overline{)600}$

$$\begin{array}{r} 24 \\ 25\overline{)600} \\ -50 \\ \hline 100 \\ -100 \end{array}$$

The divisor, 0.25, has 2 decimal places. In order to move the decimal point 2 places to the right in the divisor and the dividend, you need to write 2 zeros in the dividend.

Complete.

5. $0.35\overline{)7}$

a. How many decimal places are in the divisor? _____

b. How many places do you need to move each decimal point? _____

c. How many zeros do you need to write in the dividend? _____

d. Complete the division. What is the quotient? _____

Divide.

6. $1.6\overline{)8}$

7. $0.12\overline{)19.2}$

8. $1.25\overline{)48}$

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LESSON 3-5

Practice A

Dividing Decimals and Integers by Decimals

Divide. Estimate to check whether your answer is reasonable.

1. $7.5\overline{)15}$ — 2

2. $1.2\overline{)72}$ — 60

3. $1.5\overline{)45}$ — 30

4. $7.5\overline{)-22.5}$ — −3

5. $4.8\overline{)16.8}$ — 3.5

6. $-2.7\overline{)11.07}$ — −4.1

Divide. Estimate to check whether your answer is reasonable.

7. $2.8\overline{)14}$ — 5

8. $-5.6\overline{)21}$ — −3.75

9. $3.2\overline{)48}$ — 15

10. $2.25\overline{)9}$ — 4

11. $2.4\overline{)6}$ — 2.5

12. $-1.25\overline{)65}$ — −52

13. Jessie used 2.7 gallons of gas to drive her car 72.9 miles. What was her car's gas mileage? — 27 miles per gallon

14. Ernesto bicycled 267 miles last week at an average speed of 8.9 mi/h. How many hours did he bicycle? — 30 hours

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LESSON 3-5

Practice B

Dividing Decimals and Integers by Decimals

Divide.

1. 6 ÷ 0.25 — 24

2. 78.74 ÷ 12.7 — 6.2

3. 734.8 ÷ −1.67 — −440

4. 56.525 ÷ 0.85 — 66.5

5. 44.22 ÷ (−6.7) — −6.6

6. −6.46 ÷ 0.04 — −161.5

Divide. Estimate to check whether your answer is reasonable.

7. 63 ÷ (−4.5) — −14

8. 8 ÷ 3.2 — 2.5

9. 87 ÷ 7.25 — 12

10. −36 ÷ 1.6 — 22.5

11. 42 ÷ 4.8 — 8.75

12. 90 ÷ 0.36 — 250

13. Freddie used 6.75 gallons of gas to drive 155.25 miles. What was his car's gas mileage? — 23 miles per gallon

14. The members of a book club met at a restaurant for dinner. The total bill was $112.95 and they shared the bill equally. Each person paid $12.55. How many members are there in the book club? — 9 members

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LESSON 3-5

Practice C

Dividing Decimals and Integers by Decimals

Divide. Estimate to check whether each answer is reasonable.

1. 39.984 ÷ (−5.1) — −7.84

2. 355.94 ÷ 4.81 — 74

3. −96 ÷ 1.28 — −75

4. 34.146 ÷ 6.3 — 5.42

5. 21.384 ÷ (−2.4) — −8.91

6. 15 ÷ 0.4 — 37.5

7. 338.742 ÷ 0.54 — 627.3

8. 401.598 ÷ (−0.81) — −495.8

9. 166.17 ÷ (−0.29) — −573

Simplify each expression.

10. 40 · (1.8 ÷ 0.9) · 0.25 — 20

11. (32.4 ÷ 6.75) − 2.9 − 4.8 — −2.9

12. 4.4 + (2.7 − 6.5) ÷ 0.4 + 0.6 — −4.5

13. 6.25 · 3.6 ÷ 1.25 ÷ 3 — 6

14. 2.3 + (4.2 · 1.32) · 5 + 0.7 — 30.72

15. (−7.2 • 0.9) + 3.9 + 6.48 — 3.9

16. The price of binders at the school store increases by $0.25 each year. How long will it take for the price to increase by $3.00? — 12 years

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LESSON 3-5

Reteach

Dividing Decimals and Integers by Decimals

To divide a decimal by a decimal:

Step 1: Make the divisor a whole number by moving the decimal point to the right.

Step 2: Move the decimal point in the dividend the same number of places. Remember to place the decimal in the quotient directly above the decimal point in the dividend.

Step 3: Divide.

Divide: 1.68 ÷ 0.3 → $0.3\overline{)1.68}$ → $3\overline{)16.8}$

$$\begin{array}{r} 5.6 \\ 3\overline{)16.8} \\ -15 \\ 18 \\ -18 \end{array}$$

The divisor, 0.3, has 1 decimal place. Move the decimal point 1 place to the right in both the divisor and the dividend.

Complete.

1. $5.6\overline{)4.48}$ — 0.8

a. How many decimal places are in the divisor? — 1

b. How many places do you need to move each decimal point? — 1

c. Rewrite the division. — $56\overline{)44.8}$

d. Complete the division. What is the quotient? — 0.8

Divide.

2. $5.2\overline{)3.64}$ — 0.7

3. $0.09\overline{)36.45}$ — 405

4. $0.59\overline{)0.708}$ — 1.2

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LESSON 3-5

Reteach

Dividing Decimals and Integers by Decimals (continued)

Sometimes it is necessary to write zeros in the dividend.

$6 \div 0.25 \rightarrow 0.25\overline{)6} \rightarrow 0.25\overline{)6.00} \rightarrow 25\overline{)600}$

$$\begin{array}{r} 24 \\ 25\overline{)600} \\ -50 \\ \hline 100 \\ -100 \end{array}$$

The divisor, 0.25, has 2 decimal places. In order to move the decimal point 2 places to the right in the divisor and the dividend, you need to write 2 zeros in the dividend.

Complete.

5. $\begin{array}{r} 20 \\ 0.35\overline{)7} \end{array}$

a. How many decimal places are in the divisor? 2

b. How many places do you need to move each decimal point? 2

c. How many zeros do you need to write in the dividend? 2

d. Complete the division. What is the quotient? 20

Divide.

6. $\begin{array}{r} 5 \\ 1.6\overline{)8} \end{array}$ **7.** $\begin{array}{r} 160 \\ 0.12\overline{)19.2} \end{array}$ **8.** $\begin{array}{r} 38.4 \\ 1.25\overline{)48} \end{array}$

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LESSON 3-5

Challenge

Go For the Gold

A **golden rectangle** is a rectangle with a special relationship between the length and the width. The ancient Greeks believed that the shape of the golden rectangle was especially pleasing to the eye.

Discover the relationship between the length and width that makes a rectangle a golden rectangle.

1. The length of a golden rectangle is 5.26 centimeters and the width is 3.25 centimeters. Use a centimeter ruler to draw the rectangle.

Check students' drawings; rectangle should be about 5.3 cm long and 3.3 cm wide.

2. The **golden ratio** is a value that characterizes the relationship between the length and width of a golden rectangle. Use the dimensions of the golden rectangle above. Divide the length by the width to find the golden ratio. Round to the nearest hundredth.

1.62

For each length given below, use the golden ratio to find the width to make a golden rectangle. Round your answers to the nearest hundredth.

3. length = 8 meters — 4.94 meters

4. length = 4.85 inches — 2.99 inches

5. length = 6.09 feet — 3.76 feet

6. length = 12 yards — 7.41 yards

7. length = 16.5 centimeters — 10.19 centimeters

8. length = 24.6 meters — 15.19 meters

9. length = 55 inches — 33.95 inches

10. length = 83.2 feet — 51.36 feet

11. length = 98.2 yards — 60.62 yards

12. length = 116 centimeters — 71.60 centimeters

13. length = 220.5 inches — 136.11 inches

14. length = 348.7 meters — 215.25 meters

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LESSON 3-5

Problem Solving

Dividing Decimals and Integers by Decimals

Write the correct answer.

1. Fran has a plank of wood 4.65 meters long. She wants to cut it into pieces 0.85 meters long. How many pieces of wood that length can she cut from the plank?

5 pieces

2. Jeremy has a box of 500 nails that weighs 1.35 kilograms. He uses 60 nails to build a birdhouse. How much do the nails in the birdhouse weigh?

0.162 kilogram

3. Rhosanda is downloading a file from the Internet. The size of the file is 7.45 MB. The file is downloading at the rate of 0.095 MB per second. How many seconds will it take to download the entire file? Round your answer to the nearest second.

79 seconds

4. Sean has a piece of poster board with an area of 476.28 square centimeters. He cuts it into equal-sized squares, each with an area of 39.69 square centimeters. How many squares can he cut from the piece of poster board?

12 squares

Choose the letter for the best answer.

5. Mount McKinley, in Alaska, is about 3.848 miles high. If a mountain climber can climb 0.25 miles per day, about how long, to the nearest day, would it take to climb Mount McKinley?

A about 5 days
B about 8 days
C about 12 days
D about 15 days

6. In 2000, a production worker in Japan who worked 38.5 hours in a week would have earned an average of $847. What was the hourly wage?

F $2.20 per hour
G $3.20 per hour
H $22.00 per hour
J $32.00 per hour

7. In the 2000 Summer Olympics, Michael Johnson ran the 400-meter race in 43.84 seconds. To the nearest hundredth, what was his speed in meters per second?

A 9.12 meters per second
B 10.96 meters per second
C 1.09 meters per second
D 91.24 meters per second

8. In the 2000 Summer Olympics, the United States relay team ran the 1,600-meter relay in 2 minutes, 56.35 seconds. To the nearest hundredth, what was the speed for the relay race in meters per second?

F 2.83 meters per second
G 6.24 meters per second
H 9.07 meters per second
J 28.39 meters per second

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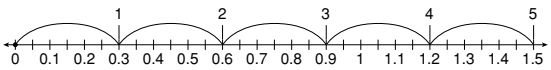
LESSON 3-5

Reading Strategies

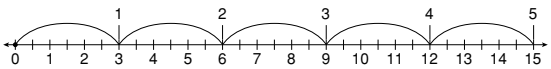
Use a Visual Model

John has a piece of lumber 1.5 meters long. He needs to cut it into pieces that are 0.3 meter long. How many pieces can he cut? The number line shows a model of the problem.



$1.5 \div 0.3 = 5$

Sarah has 15 feet of yarn. She needs to cut it into lengths of 3 feet each. How many pieces can she cut? The number line shows a model of the problem.



$15 \div 3 = 5$

Answer each question.

1. Compare the equations for the number lines above. What is the same about the equations?

Possible answer: The numerals are the same.

2. What is different?

Possible answer: One equation uses decimal values. The other uses whole numbers.

3. Compare the quotients of both problems. What do you notice?

They are both 5.

4. How can you change 1.5 to 15?

Move the decimal point one place to the right.

5. How can you change 0.3 to 3?

Move the decimal point one place to the right.

6. If you moved the decimal point in **both** the divisor and the dividend, would the quotient change?

no

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