

Name _____

Divide
Decimals by
Two-Digit
Numbers

7.5

Learning Target: Divide decimals by two-digit whole numbers.

Success Criteria:

- I can use place value to divide.
- I can place the decimal point in the quotient.
- I can regroup when necessary.
- I can use estimation to divide.

Explore and Grow

Write a division problem you can use to find the width of each rectangle.
Then find the width of each rectangle.

11 inches



Area = 253 square inches

$$253 \div 11 = W$$
$$23 \quad W = 23$$
$$\begin{array}{r} 11 \overline{) 253} \\ \underline{22} \\ 33 \\ \underline{33} \\ 0 \end{array}$$

11 meters



Area = 25.3 square meters

$$25.3 \div 11 = W$$
$$W = 2.3$$



Precision Explain how you can use estimation to check your answers.

Think and Grow: Divide Decimals by Two-Digit Numbers

Example Find $79.8 \div 14$.

Estimate 8

Regroup 7 tens as 70 ones and combine with 9 ones.

Divide the ones.

$$\begin{array}{r} 5. \\ 14 \overline{)79.8} \\ - 70 \\ \hline 9 \end{array}$$

79 ones \div 14

5 ones \times 14

79 ones $-$ 70 ones

There are 9 ones left over.

Divide the tenths.

$$\begin{array}{r} 5.7 \\ 14 \overline{)79.8} \\ - 70 \\ \hline 98 \\ - 98 \\ \hline 0 \end{array}$$

Place the decimal point.

Regroup 9 ones as 90 tenths and combine with 8 tenths.

98 tenths \div 14

7 tenths \times 14

98 tenths $-$ 98 tenths

There are 0 tenths left over.

So, $79.8 \div 14 = \underline{5.7}$.

Reasonable? 5.7 is close to 8. ✓

Example Find $20.54 \div 26$.

Step 1: Estimate the quotient.

$2,000$ hundredths \div 25 = 80 hundredths

Step 2: Divide as you do with whole numbers.

Step 3: Use the estimate to place the decimal point.

$$\begin{array}{r} 0.79 \\ 26 \overline{)20.54} \\ - 182 \\ \hline 234 \\ - 234 \\ \hline 0 \end{array}$$

So, $20.54 \div 26 = \underline{0.79}$

Show and Grow

Find the quotient. Then check your answer.

1.
$$\begin{array}{r} 4.3 \\ 12 \overline{)51.6} \\ - 48 \\ \hline 36 \\ - 36 \\ \hline 0 \end{array}$$
 4.3

2.
$$\begin{array}{r} 8.25 \\ 17 \overline{)140.25} \\ - 136 \\ \hline 42 \\ - 34 \\ \hline 85 \\ - 85 \\ \hline 0 \end{array}$$
 8.25

3.
$$\begin{array}{r} 0.53 \\ 61 \overline{)32.33} \\ - 305 \\ \hline 183 \\ - 183 \\ \hline 0 \end{array}$$
 0.53

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Apply and Grow: Practice

Place a decimal point where it belongs in the quotient.

4. $251.75 \div 19 = 13.25$

5. $88.04 \div 62 = 1.42$

6. $3.22 \div 23 = 0.14$

Find the quotient. Then check your answer.

7.
$$\begin{array}{r} 1.8 \\ 54 \overline{)97.2} \\ \underline{-54} \\ 43.2 \\ \underline{-43.2} \\ 0 \end{array}$$
 1.8

8.
$$\begin{array}{r} 2.2 \\ 91 \overline{)200.2} \\ \underline{-182} \\ 18.2 \\ \underline{-18.2} \\ 0 \end{array}$$
 2.2

9.
$$\begin{array}{r} 28.1 \\ 2 \overline{)56.2} \\ \underline{-4} \\ 16 \\ \underline{-16} \\ 0.2 \\ \underline{-0.2} \\ 0 \end{array}$$
 28.1

10. $6.08 \div 16 = 0.38$

$$\begin{array}{r} 0.38 \\ 16 \overline{)6.08} \\ \underline{-48} \\ 12.8 \\ \underline{-12.8} \\ 0 \end{array}$$
 0.38

11. $7.45 \div 5 = 1.49$

$$\begin{array}{r} 1.49 \\ 5 \overline{)7.45} \\ \underline{-5} \\ 24 \\ \underline{-20} \\ 45 \\ \underline{-45} \\ 0 \end{array}$$
 1.49

12. $147.63 \div 37 = 3.99$

$$\begin{array}{r} 3.99 \\ 37 \overline{)147.63} \\ \underline{-111} \\ 36.6 \\ \underline{-36.6} \\ 3.3 \\ \underline{-3.3} \\ 0 \end{array}$$
 3.99

Find the value of y.

13. $y \div 44 = 1.82$

$$\begin{array}{r} 1.82 \\ y \times 44 \\ \hline 728 \\ + 7280 \\ \hline 8008 \end{array}$$
 $y = 80.08$

14. $106.6 \div 82 = y$

$$\begin{array}{r} 1.3 \\ 82 \overline{)106.6} \\ \underline{82} \\ 246 \\ \underline{246} \\ 0 \end{array}$$
 $y = 1.3$

15. $y \div 13 = 2.6$

$$\begin{array}{r} 2.6 \\ y \times 13 \\ \hline 178 \\ + 260 \\ \hline 338 \end{array}$$
 $y = 33.8$

16. **MP Logic** Newton and Descartes find $44.82 \div 18$. Only one of them is correct. Without solving, who is correct? Explain.

$44.82 \div 18 = 24.9$



$44.82 \div 18 = 2.49$



17. **DIG DEEPER!** Find a decimal that you can divide by a two-digit whole number to get the quotient shown. Fill in the boxes with your dividend and divisor.

$$\begin{array}{r} 0.6 \\ \boxed{12} \overline{) \boxed{7.2}} \end{array}$$

Two decimal places in the dividend means two decimal places in the quotient.

Think and Grow: Modeling Real Life

Example You practice paddleboarding for 3 weeks. You paddle the same amount each day for 5 days each week. You paddle 22.5 miles altogether. How many miles do you paddle each day?



To find the total number of days you paddle in 3 weeks, multiply the days you paddle each week by 3.

$5 \times 3 = 15$ So, you paddleboard 15 days in 3 weeks.

To find the number of miles you paddle each day, divide the total number of miles by the number of days you paddle in 3 weeks.

$$\begin{array}{r} 1.5 \\ 15 \overline{)22.5} \\ \underline{-15} \\ 75 \\ \underline{-75} \\ 0 \end{array}$$

22 ones \div 15
75 tenths \div 15

You paddle 1.5 miles each day.

Show and Grow

18. Descartes borrows \$6,314.76 for an all-terrain vehicle. He pays back the money in equal amounts each month for 3 years. What is his monthly payment?

$$\begin{array}{r} 12 \\ \times 3 \\ \hline 36 \end{array}$$

$$\begin{array}{r} 175.41 \\ 36 \overline{)6314.76} \\ \underline{-36} \\ 271 \\ \underline{-252} \\ 194 \\ \underline{-180} \\ 140 \\ \underline{-144} \\ 36 \\ \underline{-36} \\ 0 \end{array}$$

\$175.41

19. A blue car travels 297.6 miles using 12 gallons of gasoline and a red car travels 358.8 miles using 13 gallons of gasoline. Which car travels farther using 1 gallon of gasoline? How much farther?

$$\begin{array}{r} 27.6 \\ -24.8 \\ \hline 2.8 \end{array}$$

$$\begin{array}{r} 24.8 \\ 12 \overline{)297.6} \\ \underline{-24} \\ 57 \\ \underline{-48} \\ 96 \\ \underline{-96} \\ 0 \end{array}$$

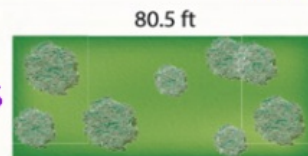
$$\begin{array}{r} 27.6 \\ 13 \overline{)358.8} \\ \underline{-26} \\ 98 \\ \underline{-91} \\ 78 \\ \underline{-78} \\ 0 \end{array}$$

**Red
2.8
miles
farther**

20. **DIG DEEPER!** The rectangular dog park has an area of 2,616.25 square feet. How much fencing does an employee need to enclose the dog park?

$$\begin{array}{r} 32.5 \\ 80.5 \overline{)2616.25} \\ \underline{2415} \\ 2012 \\ \underline{1610} \\ 4025 \\ \underline{4025} \\ 0 \end{array}$$

$$\begin{array}{r} 80.5 \\ 80.5 \\ 32.5 \\ + 32.5 \\ \hline 226.0 \end{array}$$



226 ft.

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Homework & Practice

7.5

Learning Target: Divide decimals by two-digit whole numbers.

Example Find $8.52 \div 12$.

Step 1: Estimate the quotient.

$$850 \text{ hundredths} \div 10 = \underline{85} \text{ hundredths}$$

Step 2: Divide as you do with whole numbers.

Step 3: Use the estimate to place the decimal point.

$$\begin{array}{r} \boxed{71} \\ 12 \overline{)8.52} \\ \underline{-84} \\ 12 \\ \underline{-12} \\ 0 \end{array}$$



So, $8.52 \div 12 = \underline{0.71}$.

Place a decimal point where it belongs in the quotient.

1. $127.2 \div 24 = 53$

2. $48.64 \div 32 = 152$

3. $514.18 \div 47 = 1094$

Find the quotient. Then check your answer.

4. _____

5. _____

6. _____

Find the value of y .

10. $y \div 16 = 0.23$

11. $44.1 \div 21 = y$

12. $y \div 28 = 11.04$

13. **YOU BE THE TEACHER** Your friend finds $21.44 \div 16$. Is your friend correct? Explain.

$$\begin{array}{r} 13.4 \\ 16 \overline{)21.44} \\ \underline{-16} \\ 54 \\ \underline{-48} \\ 64 \\ \underline{-64} \\ 0 \end{array}$$

14. **DIG DEEPER!** A banker divides the amount shown among 12 people. How can she regroup the money? How much money does each person get?



15. **Modeling Real Life** You have hip-hop dance practice for 5 weeks. You attend practice 5 days each week. Each practice is the same length of time. You practice for 37.5 hours altogether. How many hours do you practice each day?

16. **DIG DEEPER!** Your rectangular classroom rug has an area of 110.5 square feet. What is the perimeter of the rug?

