

Learning Objective: Students will be able to use a formal rule to divide decimals.

Warm Up

1. $\frac{2}{5} - \frac{1}{20}$

5. $\frac{13}{16} - \frac{13}{16}$

9. $\frac{11}{20} - \frac{1}{2}$

2. $\frac{17}{19} - \frac{14}{19}$

6. $\frac{9}{11} - \frac{2}{11}$

10. $\frac{5}{12} - \frac{1}{3}$

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Warm Up Answers

$$1. \frac{2}{5} - \frac{1}{20} \\ = \frac{7}{20}$$

$$5. \frac{13}{16} - \frac{13}{16} \\ = 0$$

$$9. \frac{11}{20} - \frac{1}{2} \\ = \frac{1}{20}$$

$$2. \frac{17}{19} - \frac{14}{19} \\ = \frac{3}{19}$$

$$6. \frac{9}{11} - \frac{2}{11} \\ = \frac{7}{11}$$

$$10. \frac{5}{12} - \frac{1}{3} \\ = \frac{1}{12}$$

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Homework Answers

2.5 Record and Practice Journal

Multiply. Use estimation to check your answer.

1.
$$\begin{array}{r} 0.5 \\ \times 4 \\ \hline \end{array}$$
2

2.
$$\begin{array}{r} 3.8 \\ \times 6 \\ \hline \end{array}$$
22.8

3.
$$\begin{array}{r} 2.1 \\ \times 11 \\ \hline \end{array}$$
23.1

4.
$$\begin{array}{r} 0.8 \\ \times 0.6 \\ \hline \end{array}$$
0.48

5.
$$\begin{array}{r} 0.003 \\ \times 0.09 \\ \hline \end{array}$$
0.00027

6.
$$\begin{array}{r} 8.91 \\ \times 1.26 \\ \hline \end{array}$$
11.2266

7. You earn \$7.80 an hour working as a dog sitter. You work 12.5 hours during the weekend. How much money do you make?

\$97.50

8. You use a microscope to look at bacteria that is 0.0034 millimeter long. The microscope magnifies the bacteria 430 times. How long does the bacteria appear to be when you look at it through the microscope?

1.462 millimeters

Lesson 2.6

October 26, 2015

Essential Question:

How can you divide decimals?

Lesson Objective:

Students will be able to:
use a formal rule to divide decimals.

Self-Evaluation Scale

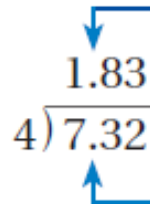
Score	Description
4	I can teach other students how to use a formal rule to divide decimals.
3	I can use a formal rule to divide decimals.
2	I recognize, but still need help to use a formal rule to divide decimals.
1	I do not know how to use a formal rule to divide decimals.

Key Idea

Dividing Decimals by Whole Numbers

Words Place the decimal point in the quotient above the decimal point in the dividend. Then divide as you would with whole numbers. Continue until there is no remainder.

Numbers

$$\begin{array}{r} 1.83 \\ 4 \overline{) 7.32} \end{array}$$


Place the decimal point in the quotient above the decimal point in the dividend.

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1 Dividing Decimals by Whole Numbers

a. Find $7.6 \div 4$.

Estimate $8 \div 4 = 2$

$$\begin{array}{r}
 1.9 \\
 4 \overline{)7.6} \\
 \underline{-4} \\
 36 \\
 \underline{-36} \\
 0
 \end{array}$$

Place the decimal point in the quotient above the decimal point in the dividend.

So, $7.6 \div 4 = 1.9$.

Reasonable? $1.9 \approx 2$ ✓

b. Find $4.38 \div 12$.

$$\begin{array}{r}
 0.365 \\
 12 \overline{)4.380} \\
 \underline{-36} \\
 78 \\
 \underline{-72} \\
 60 \\
 \underline{-60} \\
 0
 \end{array}$$

Place the decimal point in the quotient above the decimal point in the dividend.

Insert a zero and continue to divide.

So, $4.38 \div 12 = 0.365$.

Check $0.365 \times 12 = 4.38$ ✓

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Key Idea

Dividing Decimals by Decimals

Words Multiply the divisor *and* the dividend by a power of 10 to make the divisor a whole number. Then place the decimal point in the quotient and divide as you would with whole numbers. Continue until there is no remainder.

Numbers

$$1.2 \overline{) 4.56}$$

Multiply each number by 10.

$$12 \overline{) 45.6}$$

3.8

Place the decimal point above the decimal point in the dividend 45.6.

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2 Dividing Decimals

a. Find $18.2 \div 1.4$.

Multiply each number by 10.

Place the decimal point above the decimal point in the dividend 182.

$$\begin{array}{r}
 1.4 \overline{)18.2} \longrightarrow 14 \overline{)182.} \\
 \underline{-14} \\
 42 \\
 \underline{-42} \\
 0
 \end{array}$$

So, $18.2 \div 1.4 = 13$. **Check** $13 \times 1.4 = 18.2$ ✓

b. Find $0.273 \div 0.39$.

Multiply each number by 100.

Place the decimal point above the decimal point in the dividend 27.3.

$$\begin{array}{r}
 0.39 \overline{)0.273} \longrightarrow 39 \overline{)27.3} \\
 \underline{-27.3} \\
 0
 \end{array}$$

So, $0.273 \div 0.39 = 0.7$. **Check** $0.7 \times 0.39 = 0.273$ ✓

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3

Inserting Zeros in the Dividend and the Quotient

Divide $2.45 \div 0.007$.

$$0.007 \overline{)2.450}$$

Multiply each number by 1000.
Insert a zero in the dividend.

$$\begin{array}{r} 350 \\ 7 \overline{)2450} \\ \underline{-21} \\ 35 \\ \underline{-35} \\ 00 \end{array}$$

Because $0 \div 7 = 0$,
insert a zero in the
quotient.

So, $2.45 \div 0.007 = 350$.

$$\begin{array}{r} 6000. \\ \hline 6 \overline{) 36000} \end{array}$$

$$\begin{array}{r} \overline{) 36} \end{array}$$



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OYO!

Divide. Check your answer.

11. $3.8 \div 0.16$

12. $15.6 \div 0.78$

13. $7.2 \div 0.048$

14. $0.18 \div 0.003$

$$\begin{array}{r} 300 \overline{) 180} \\ \underline{60} \\ 3 \overline{) 80} \end{array}$$

$$\begin{array}{r} \underline{048} \overline{) 7200} \end{array}$$

$$\begin{array}{r} 0150. \\ \underline{48} \overline{) 7200.} \\ \underline{-48} \\ \hline 240 \\ \underline{-240} \\ \hline 00 \end{array}$$

$$\overline{)78 \overline{)1560}}$$

$$\begin{array}{r} 20. \\ \hline 78 \overline{)1560.} \\ \underline{-156} \\ 00 \end{array}$$

$$\begin{array}{r} 0 \quad 2 \quad 3 \quad . \quad 7 \quad 5 \\ \hline 16 \overline{) 38000} \\ \underline{-3} \\ 60 \\ \underline{-48} \\ 120 \\ \underline{-112} \\ 80 \end{array}$$

Handwritten annotations include arrows pointing from the 0s in the dividend to the 0s in the quotient, and a large arrow pointing from the 0s in the dividend to the 80 remainder.

$$\begin{array}{r} 28 \overline{) 156} \\ \underline{156} \\ 0 \end{array}$$

28) 156

$$\begin{array}{r} 28 \overline{) 156.00} \\ \underline{156} \\ 00 \end{array}$$

28) 156.00

100

DMSB

KHAN

$$\begin{array}{r} 20 \overline{) 400} \\ \underline{-200} \\ 200 \\ \underline{200} \\ 0 \end{array} \quad \begin{array}{l} 10 \\ 10 \\ \hline 20 \end{array}$$



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Assignment

Complete problems:

14, 16, 26, 27, 32, 36, 42, 44, 48, 56, 59, & 60

on pages 97 - 99 in your Big Ideas Text Book.

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Homework

In your Big Ideas Record and Practice Journal
page 54.