

## 2.6 Dividing Decimals

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### ESSENTIAL QUESTION

How can you divide decimals?

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### COMMON CORE STATE STANDARDS

6.NS.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

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### EXAMPLE 1 Dividing Decimals by Whole Numbers

Divide.  $7.6 \div 4$

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

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### EXAMPLE 2 Dividing Decimals by Whole Numbers

Divide.  $4.38 \div 12$

$$\begin{array}{r} .365 \\ 12 \overline{)4.380} \\ 36 \downarrow \\ \hline 78 \\ -72 \downarrow \\ \hline 60 \\ -60 \downarrow \\ \hline 0 \end{array}$$

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### On Your Own

Divide.  $36.4 \div 2$

$$\begin{array}{r} 18.2 \\ 2 \overline{)36.4} \\ -2 \downarrow \\ \hline 16 \\ -16 \downarrow \\ \hline 4 \\ -4 \downarrow \\ \hline 0 \end{array}$$

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**On Your Own**Divide.  $22.2 \div 6$ 

$$\begin{array}{r} 3.7 \\ 6 \overline{)22.2} \\ 18 \downarrow \\ \hline 42 \\ -42 \downarrow \\ \hline 0 \end{array}$$

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**On Your Own**Divide.  $59.64 \div 7$ 

$$\begin{array}{r} 8.52 \\ 7 \overline{)59.64} \\ 56 \downarrow \\ \hline 36 \\ 35 \downarrow \\ \hline 14 \\ -14 \downarrow \\ \hline 0 \end{array}$$

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**On Your Own**Divide.  $43.26 \div 14$ 

$$\begin{array}{r} 3.09 \\ 14 \overline{)43.26} \\ -42 \downarrow \\ \hline 12 \\ = 0 \downarrow \\ \hline 126 \\ -126 \downarrow \\ \hline 0 \end{array}$$

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**On Your Own**Divide.  $6.2 \div 4$ 

$$\begin{array}{r} 1.55 \\ 4 \overline{)6.20} \\ -4 \downarrow \\ \hline 22 \\ -20 \downarrow \\ \hline 20 \\ -20 \downarrow \\ \hline 0 \end{array}$$

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**On Your Own**Divide.  $3.12 \div 16$ 

$$\begin{array}{r} .195 \\ 16 \overline{)3.120} \\ -16 \downarrow \\ \hline 152 \\ -144 \downarrow \\ \hline 80 \\ -80 \downarrow \\ \hline 0 \end{array}$$

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**Dividing Decimals by Whole Numbers**

- 1) Place the decimal point in the quotient above the decimal point in the dividend.
- 2) Then divide as you would with whole numbers.
- 3) If there is a remainder write zeros in the dividend as needed and divide until there is no remainder.

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**EXAMPLE 21** Dividing DecimalsDivide  $18.2 \div 1.4$ 

$$\begin{array}{r} 13. \\ 1.4 \overline{)18.2} \\ -14 \downarrow \\ \hline 42 \\ -42 \\ \hline 0 \end{array}$$

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**EXAMPLE 22** Dividing DecimalsDivide  $0.273 \div 0.39$ 

$$\begin{array}{r} 0.7 \\ 0.39 \overline{)0.273} \\ -273 \\ \hline 0 \end{array}$$

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**On Your Own**Divide.  $9.6 \div 1.2$ 

$$\begin{array}{r} 8.0 \\ 1.2 \overline{)9.6} \\ -96 \\ \hline 0 \end{array}$$

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**On Your Own**Divide.  $57.8 \div 3.4$ 

$$\begin{array}{r} 17. \\ 3.4 \overline{)57.8} \\ -34 \downarrow \\ \hline 238 \\ -238 \\ \hline 0 \end{array}$$

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**On Your Own**Divide.  $21.643 \div 2.3$ 

$$\begin{array}{r} 9.41 \\ 2.3 \overline{)21.643} \\ -207 \downarrow \\ \hline 94 \\ -92 \downarrow \\ \hline 23 \\ -23 \\ \hline 0 \end{array}$$

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**On Your Own**Divide.  $0.459 \div 0.51$ 

$$\begin{array}{r} 0.9 \\ 0.51 \overline{)0.459} \\ -459 \\ \hline 0 \end{array}$$

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**EXAMPLE** Inserting Zeros in the Dividend and the QuotientDivide.  $2.45 \div 0.007$ 

$$\begin{array}{r} 350 \\ \overline{)2.450} \\ 21 \downarrow \\ \hline 35 \\ -35 \downarrow \end{array}$$

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$$\begin{array}{r} 0 \\ \overline{-0} \\ \hline 0 \end{array}$$

**On Your Own**Divide.  $3.8 \div 0.16$ 

$$\begin{array}{r} 16 \\ \times 7 \\ \hline 112 \end{array}$$

$$\begin{array}{r} 3.800 \\ \overline{-32} \\ \hline 60 \\ -48 \\ \hline 120 \\ -112 \\ \hline 80 \\ -80 \\ \hline 0 \end{array}$$

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23.75

**On Your Own**Divide.  $15.6 \div 0.78$ 

$$\begin{array}{r} 20. \\ \overline{)15.60} \\ -156 \downarrow \\ \hline 00 \\ -0 \\ \hline 0 \end{array}$$

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**On Your Own**Divide.  $7.2 \div 0.048$ 

$$\begin{array}{r} 48 \\ \times 5 \\ \hline 240 \end{array}$$

$$\begin{array}{r} 150. \\ \overline{-48} \\ \hline 240 \\ -240 \\ \hline 00 \\ -0 \\ \hline 0 \end{array}$$

22

**On Your Own**Divide.  $0.18 \div 0.003$ 

$$\begin{array}{r} 60. \\ \overline{)0.180} \\ -18 \downarrow \\ \hline 00 \\ -0 \\ \hline 0 \end{array}$$

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**EXAMPLE** Real-Life Application

Cookies for a school fundraiser cost \$3.75 per box. The total amount received from the cookie sale is \$2718.75. How many boxes of cookies were sold?

$$\begin{array}{r} 3.75. \\ \overline{)2718.75} \\ -2625 \downarrow \\ \hline 9137 \end{array}$$

725 boxes  
of cookies  
were sold

$$\begin{array}{r} 3 \\ 325 \\ \times 5 \\ \hline 1875 \\ -1875 \\ \hline 0 \end{array}$$

**Divide Decimals by Decimals**

- 1) In the divisor move decimal to the right to get a whole number.
- 2) Move decimal in dividend same number of place values you moved decimal in divisor.
- 3) Then place the decimal point in the quotient above the decimal point in the dividend and divide as you would with whole numbers.
- 4) If there is a remainder write zeros in the dividend as needed and divide until there is no remainder.

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**On Your Own**

Evaluate the expression.

10.  $12.67 + 8.2 - 1.9$

11.  $6.4(1.8 \cdot 7.5)$

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