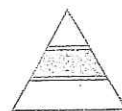


Name \_\_\_\_\_


**SKILL**  
**S57**

## Multiply Decimals

**OBJECTIVE** Multiply decimals to the hundredths.

To multiply decimals, multiply as you would whole numbers.  
 Count the total number of decimal places in both factors. Then move the decimal point of the product that number of places to the left.

 Multiply:  $0.34 \times 2.6$ .

**STEP 1**

Multiply the decimals like whole numbers.

Regroup as necessary.

$$\begin{array}{r} 34 \\ \times 26 \\ \hline 204 \\ + 680 \\ \hline \end{array}$$

**STEP 2**

Count the number of decimal places in the factors.

Find the sum of the decimal places in the factors.

 $0.34$  has 2 decimal place(s).

 $2.6$  has 1 decimal place(s).

The sum of the decimal places is

$$\underline{2} + \underline{1} = \underline{3}$$

**STEP 3**

Place the decimal point in the product.

Move the decimal point the same number of places to the left as the sum of the decimal places.

$$0.34 \times 2.6 = \underline{2.884}$$

**Try This!**

Multiply.

1.  $0.6 \times 1.3 = \underline{0.78}$

$$\begin{array}{r} 0.6 \\ \times 1.3 \\ \hline \end{array}$$

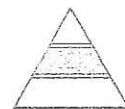
$$\begin{array}{r} 18 \\ 60 \\ \hline \end{array}$$

$$\underline{78}$$

2.  $9.5 \times 0.04 = \underline{0.38}$

$$\begin{array}{r} 0.04 \\ \times 9.5 \\ \hline \end{array}$$

$$\begin{array}{r} 380 \\ \hline \end{array}$$


**Algebra • Division Patterns with Decimals**
**OBJECTIVE** Use a pattern to divide a number by a power of 10.

To divide by 10, 100, or 1,000, count the number of zeros in the divisor. Then move the decimal point that many places to the left.

Divide 279 by 1, 10, 100, and 1,000.

**A**

To divide a number by 10, 100, or 1,000, use the number of zeros in the divisor to decide how to change the position of the decimal point in the quotient. When there are 0 zeros in the divisor the decimal point moves 0 places to the left. When there is 1 zero in the divisor the decimal point moves 1 place to the left. When there are 2 zeros in the divisor the decimal point moves 2 places to the left. Write the quotient.

$$279 \div 1 = \underline{279}$$

Move the decimal point 0 places to the left.

$$279 \div 10 = \underline{27.9}$$

Move the decimal point 1 place to the left.

$$279 \div 100 = \underline{2.79}$$

Move the decimal point 2 places to the left.

$$279 \div 1,000 = \underline{0.279}$$

Move the decimal point 3 places to the left.

**B**

To divide a number by a power of 10 use the exponent to decide how the decimal point changes in the quotient. When the exponent is 0, move the decimal point 0 places to the left. When the exponent is 1, move the decimal point 1 place to the left. When the exponent is 2, move the decimal point 2 places to the left. Write the quotient.

$$25.5 \div 10^0 = \underline{25.5}$$

$$25.5 \div 10^1 = \underline{2.55}$$

$$25.5 \div 10^2 = \underline{0.255}$$

**Try This!**

Complete the pattern.

$$1. \quad 1,234 \div 1 = \underline{1,234}$$

$$1,234 \div 10 = \underline{123.4}$$

$$1,234 \div 100 = \underline{12.34}$$

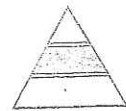
$$1,234 \div 1,000 = \underline{1.234}$$

$$2. \quad 37 \div 10^0 = \underline{37}$$

$$37 \div 10^1 = \underline{3.7}$$

$$37 \div 10^2 = \underline{0.37}$$





# Model Division of Decimals by Whole Numbers

**OBJECTIVE** Use models to divide decimals by whole numbers.

You can use base-ten blocks to model division of a decimal by a whole number.

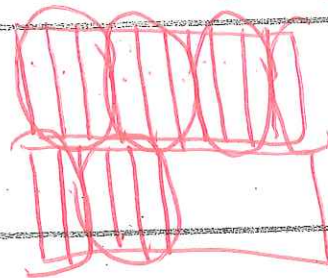
Find.  $1.5 \div 3$ .

*Do not need to use base ten!*

**STEP 1**

Use base-ten models to show the dividend. Draw quick pictures of your model.

Dividend



**STEP 2**

You cannot evenly divide 1 into 3 groups. Regroup 1 as 10 tenths. Draw quick pictures of the regrouped models.

Regroup

There are 5 tenths in 1.5.

**STEP 3**

Draw 3 circles to represent the divisor. Share the tenths equally among 3 groups.

5 tenths    5 tenths    5 tenths

**STEP 4**

Write how many are in each group. Rewrite as a decimal.

There are 3 tenths in each group.

$1.5 \div 3 = \underline{0.5}$

**Try This!**

Divide. Draw a quick picture.

1.  $1.4 \div 2$

There are 7 tenths in 1.4.

$$\begin{array}{r} 0.7 \\ 2 \overline{) 1.4} \end{array}$$

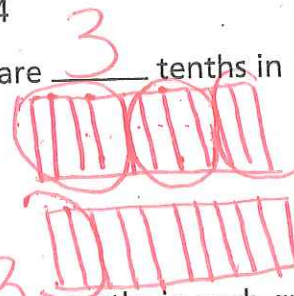


There are 7 tenths in each group, or 0.7

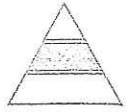
2.  $1.2 \div 4$

There are 3 tenths in 1.2.

$$\begin{array}{r} 0.3 \\ 4 \overline{) 1.2} \\ \underline{-12} \\ 0 \end{array}$$



There are 3 tenths in each group, or 0.3


**SKILL**  
**S62**

## Write Zeros in the Dividend

**OBJECTIVE** Write zero in the dividend to find the quotient.

Sometimes there are not enough digits in a dividend to complete the division. When that happens, you can add zero to the end of the dividend. A zero written at the end of a decimal does not change its value.

 Divide:  $13.2 \div 8$ .

**STEP 1**

Divide as you would divide whole numbers.

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

**STEP 2**

Since the difference is less than the divisor write 0 at the end of the dividend.

Complete the division.

$$\begin{array}{r} 1 \\ 8 \overline{)13.2} \\ \underline{-8} \phantom{0} \\ 52 \\ \underline{-48} \\ 4 \end{array}$$

$$\begin{array}{r} 1.65 \\ 8 \overline{)13.20} \\ \underline{-8} \phantom{0} \\ 452 \\ \underline{-48} \phantom{0} \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

$$13.2 \div 8 = 1.65$$

### Try This!

Find the quotient.

1.  ~~$5 \overline{)6}$~~   $5 \overline{)6.0}$   $1.2$

$$\begin{array}{r} 1.2 \\ 5 \overline{)6.0} \\ \underline{-5} \phantom{0} \\ 10 \\ \underline{-10} \\ 0 \end{array}$$

3.  $5 \overline{)78}$   $15.6$

$$\begin{array}{r} 15.6 \\ 5 \overline{)78.0} \\ \underline{-5} \phantom{0} \\ 28 \\ \underline{-25} \phantom{0} \\ 30 \\ \underline{-30} \\ 0 \end{array}$$

2.  $2 \overline{)23.0}$   $11.5$

$$\begin{array}{r} 11.5 \\ 2 \overline{)23.0} \\ \underline{-2} \phantom{0} \\ 03 \\ \underline{-2} \phantom{0} \\ 10 \\ \underline{-10} \\ 0 \end{array}$$

4.  $8 \overline{)3.6}$   $0.45$

$$\begin{array}{r} 0.45 \\ 8 \overline{)3.60} \\ \underline{-3} \phantom{0} \\ 60 \\ \underline{-48} \phantom{0} \\ 120 \\ \underline{-120} \\ 0 \end{array}$$