

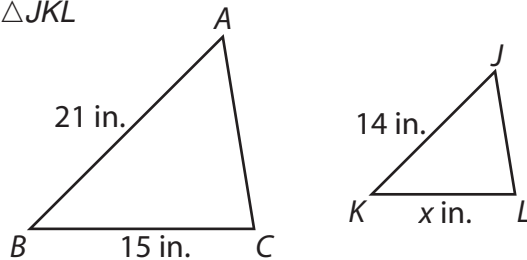
**LESSON** **2-2** **Ready to Go On? Skills Intervention**  
**Applications of Proportions**

Find these vocabulary words in the lesson and the Multilingual Glossary.

**Vocabulary**  
 similar corresponding sides corresponding angles indirect measurement scale factor

**Finding Missing Measures in Similar Figures**  
 Find the value of  $x$  in each diagram.

A.  $\triangle ABC \sim \triangle JKL$



$AB$  corresponds to \_\_\_\_\_.  $BC$  corresponds to \_\_\_\_\_.  $AC$  corresponds to \_\_\_\_\_.

Complete the proportion.  $\frac{AB}{\square} = \frac{BC}{\square}$

Complete the proportion where  $x$  represents  $KL$ .

$$\frac{21}{\square} = \frac{\square}{x}$$

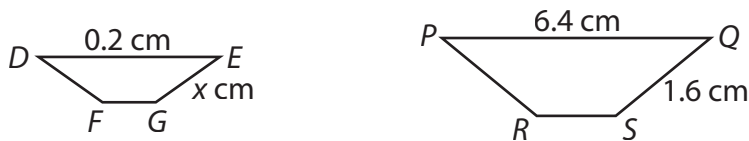
Set the cross products equal. \_\_\_\_\_ = \_\_\_\_\_ Solve for  $x$ .

$$21x = \square$$

$$x = \square$$

What is  $KL$ ? \_\_\_\_\_

B.  $DEGF \sim PQSR$



Complete the proportion:  $\frac{DE}{\square} = \frac{PQ}{\square}$

Complete the proportion where  $x$  represents  $GE$ .

$$\frac{0.2}{\square} = \frac{\square}{x}$$

Set the cross products equal. \_\_\_\_\_ = \_\_\_\_\_ Solve for  $x$ .

$$6.4x = \square$$

$$x = \square$$

What is  $GE$ ? \_\_\_\_\_

**LESSON 2-1 Ready to Go On? Skills Intervention**  
**Rates, Ratios, and Proportions**

Find these vocabulary words in the lesson and the Multilingual Glossary.

Vocabulary				
ratio	proportion	cross products	scale	scale drawing
rate	unit rate	scale model	conversion factor	dimensional analysis

**Solving Proportions**  
 Solve each proportion.

A.  $\frac{-22}{m} = \frac{11}{4}$

Complete the equation using cross products:  
 $4 \cdot \frac{-22}{m} = \frac{11}{4} \cdot m$   
 $\frac{-88}{m} = 11m$

Multiply.  
 $\frac{-88}{11} = \frac{11m}{11}$   
 $-8 = m$

To isolate  $m$ , **divide** both sides by **11**.

What is the value of  $m$ ? **-8**

To check your answer, substitute the solution in for  $m$ .  
 $\frac{-22}{m} = \frac{11}{4} \rightarrow \frac{-22}{-8} = \frac{11}{4}$   
 $\frac{11}{4} = \frac{11}{4}$

Are the ratios equivalent? **Yes**

B.  $\frac{6}{18} = \frac{r+3}{20}$

Complete the equation using cross products:  
 $6 \cdot 20 = 18 \cdot (r+3)$   
 $6 \cdot 20 = 18r + 54$   
 $120 = 18r + 54$   
 $-54 \quad -54$   
 $66 = 18r$

To simplify the right side, use the **Distributive** Property.  
 To simplify the left side, multiply.  
 Subtract **54** from both sides to isolate the variable.

To solve for  $r$ , **divide** both sides by **18**.

What is the value of  $r$ ?  **$\frac{11}{3}$**

To check your answer, substitute the solution in for  $r$ .  
 $\frac{6}{18} = \frac{r+3}{20} \rightarrow \frac{6}{18} = \frac{\frac{11}{3}+3}{20}$   
 $\frac{6}{18} = \frac{11}{30}$

Are the ratios equivalent? **Yes**

**LESSON 2-1 Ready to Go On? Problem Solving Intervention**  
**Rates, Ratios, and Proportions**

A comparison of two quantities by division is a ratio. Two ratios that are equivalent is a proportion.

The ratio of cats to dogs in the local animal shelter is 3:5. There are 60 dogs in the animal shelter. How many cats are in the animal shelter?

**Understand the Problem**

1. What is the ratio of cats to dogs?  **$\frac{3}{5}$  or 3:5 or 3 to 5**
2. How many dogs are in the shelter? **60**

**Make a Plan**

3. What do you need to determine? **The number of cats in the animal shelter**
4. Complete the proportion: ratio of cats to dogs =  $\frac{\text{number of cats}}{\text{number of dogs}}$
5. If  $c$  represents the number of cats in the shelter, complete the proportion to find the number of cats:  $\frac{3}{5} = \frac{c}{60}$

**Solve**

6. To solve the proportion, multiply both sides by **60**.
7. Solve the equation for  $c$ .
8. The number of cats in the shelter is **36**.

$$\frac{3}{5} = \frac{c}{60}$$

$$(\frac{60}{5}) \cdot \frac{3}{5} = \frac{c}{60} \cdot (\frac{60}{5})$$

$$\frac{36}{5} = c$$

**Look Back**

9. To check your solution, simplify the ratio of  $c$  to the number of dogs in the shelter.  
 $\frac{c}{60} = \frac{36}{60} = \frac{3}{5}$
10. Is this the same as the ratio of cats to dogs, 3:5? **Yes**

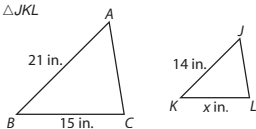
**LESSON 2-2 Ready to Go On? Skills Intervention**  
**Applications of Proportions**

Find these vocabulary words in the lesson and the Multilingual Glossary.

Vocabulary				
similar	corresponding sides	corresponding angles	indirect measurement	scale factor

**Finding Missing Measures in Similar Figures**  
 Find the value of  $x$  in each diagram.

A.  $\triangle ABC \sim \triangle JKL$



$AB$  corresponds to  **$JK$** .  $BC$  corresponds to  **$KL$** .  $AC$  corresponds to  **$JL$** .

Complete the proportion:  $\frac{AB}{JK} = \frac{BC}{KL}$

Complete the proportion where  $x$  represents  $KL$ .

Set the cross products equal.  **$x = 15 \cdot 14$**  Solve for  $x$ .

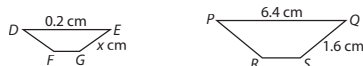
$$\frac{21}{14} = \frac{15}{x}$$

$$21x = 210$$

$$x = 10$$

What is  $KL$ ? **10 in.**

B.  $DEGF \sim PQSR$



Complete the proportion:  $\frac{DE}{GF} = \frac{PQ}{RS}$

Complete the proportion where  $x$  represents  $GF$ .

Set the cross products equal.  **$(0.2)(1.6) = 6.4x$**  Solve for  $x$ .

$$\frac{0.2}{x} = \frac{6.4}{1.6}$$

$$6.4x = 0.32$$

$$x = 0.05$$

What is  $GF$ ? **0.05 cm**

**LESSON 2-3 Ready to Go On? Skills Intervention**  
**Precision and Accuracy**

Find these vocabulary words in the lesson and the Multilingual Glossary.

Vocabulary		
precision	accuracy	tolerance

**Comparing Precision of Measurements**

Choose the more precise measurement in each pair.

4.7 km; 4723 m

For 4.7 km, what is the unit of measure? **kilometers**

To what place value is the unit measured? **tenths**

For 4723 m, what is the unit of measure? **meters**

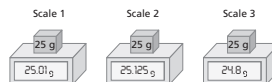
To what place value is the unit measured? **ones**

How many meters is a tenth of a kilometer? **100**

Compare: A meter is **less** than a tenth of a kilometer, so **4723 m** is more precise.

**Comparing Precision and Accuracy**

Whitney is testing three different scales using a standard mass that is exactly 25 grams. She gets the following results.



A. Which scale is most precise?

Scales 1 measure to the nearest **hundredth** of a gram.

Scale 2 measures to the nearest **thousandth** of a gram.

Scale 3 measures to the nearest **tenth** of a gram.

The scale that measures to the smallest unit is **Scale 2**, so it is the most precise.

B. Which scale is most accurate?

For each scale, find the absolute value of the difference of the standard mass and the scale reading.

For Scale 1: The difference is  $25 - 25.01 = -0.01$ , the absolute value is **0.01**.

For Scale 2: The difference is  $25 - 25.125 = -0.125$ , the absolute value is **0.125**.

For Scale 3: The difference is  $25 - 24.8 = 0.02$ , the absolute value is **0.02**.

Because **0.01 < 0.02 < 0.125**, Scale **1** is the most accurate.