

**LESSON**

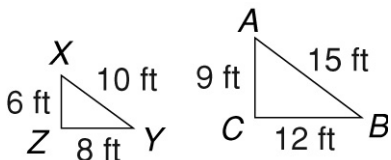
**4**

# Proportional Relationships

## Review for Mastery: Similar Figures and Proportions

Figures that have the same shape but not the same size are **similar figures**. In similar figures, the ratio of the lengths of the corresponding sides are proportional, and the corresponding angles have equal measures.

To determine if  $\triangle ABC$  is similar to  $\triangle XYZ$ , you can write a proportion for each pair of corresponding sides.

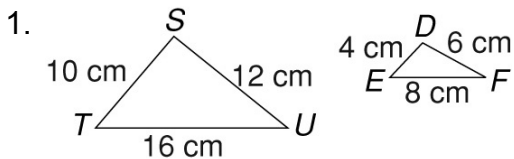


longest sides	middle sides	shortest sides
$\frac{AB}{XY} = \frac{15}{10} = \frac{3}{2}$	$\frac{BC}{YZ} = \frac{12}{8} = \frac{3}{2}$	$\frac{AC}{XZ} = \frac{9}{6} = \frac{3}{2}$

The corresponding sides are always in the ratio  $\frac{3}{2}$ . So the triangles are similar.

If a polygon has more than 3 sides, you must also show that the corresponding angles are equal.

**Identify the corresponding sides. Use ratios to determine whether the figures are similar.**

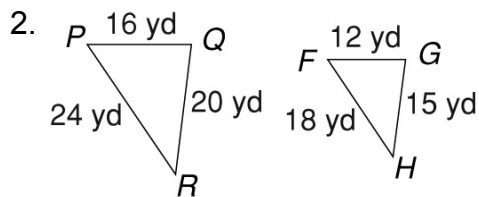


$$\frac{TU}{EF} = \frac{16}{8} = 2; \quad \frac{SU}{DF} = \frac{12}{6} = 2;$$

$$\frac{ST}{DE} = \frac{10}{4} = 2.5$$

Are the ratios proportional? \_\_\_\_\_

Are the triangles similar? \_\_\_\_\_

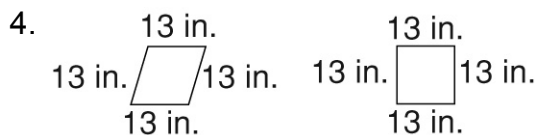
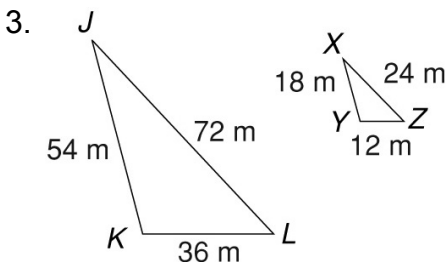


$$\frac{PQ}{FG} = \frac{16}{12} = \frac{4}{3}; \quad \frac{PR}{FH} = \frac{24}{18} = \frac{4}{3};$$

$$\frac{QR}{GH} = \frac{20}{15} = \frac{4}{3}$$

Are the ratios proportional? \_\_\_\_\_

Are the triangles similar? \_\_\_\_\_



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