

Chapter 7: Similarity

SECTION 1: RATIOS IN SIMILAR POLYGONS

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I Can

- Identify similar polygons
- Apply properties of similar polygons to solve problems

Similar vs. Congruent

- SIMILAR (\sim): Same shape, not always the same size



- CONGRUENT (\cong): Same size and shape



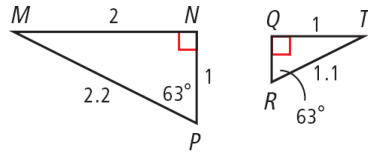
Similar Polygons

Similar Polygons

DEFINITION	DIAGRAM	STATEMENTS
Two polygons are similar polygons if and only if their corresponding angles are congruent and their corresponding side lengths are proportional.		$\angle A \cong \angle E$ $\angle B \cong \angle F$ $\angle C \cong \angle G$ $\angle D \cong \angle H$ $\frac{AB}{EF} = \frac{BC}{FG} = \frac{CD}{GH} = \frac{DA}{HE} = \frac{1}{2}$

Example

Identify the pairs of congruent angles and corresponding sides.

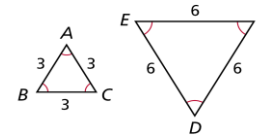


Similarity Ratio

A **similarity ratio** is the ratio of the lengths of the corresponding sides of two similar polygons.

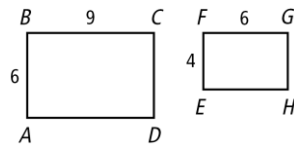
The similarity ratio of $\triangle ABC$ to $\triangle DEF$ is $\frac{3}{6}$, or $\frac{1}{2}$.

The similarity ratio of $\triangle DEF$ to $\triangle ABC$ is $\frac{6}{3}$, or 2.



Example

Determine whether the polygons are similar. If so, write the similarity ratio and a similarity statement.

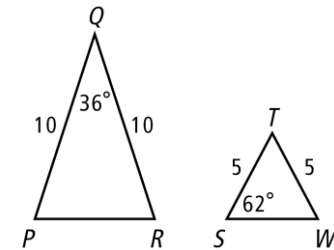


rectangles $ABCD$ and $EFGH$

Example

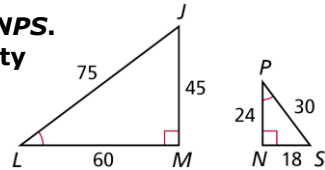
Determine whether the polygons are similar. If so, write the similarity ratio and a similarity statement.

$\triangle PQR$ and $\triangle STW$



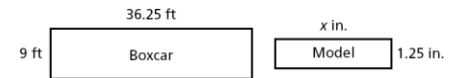
Example

Determine if $\triangle JLM \sim \triangle NPS$.
If so, write the similarity ratio and a similarity statement.



Example

A boxcar has the dimensions shown.
A model of the boxcar is 1.25 in. wide. Find the length of the model to the nearest inch.



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