

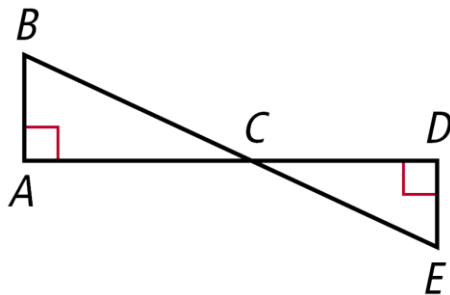
Jadwin-Geometry-5A Period-Off Site Learning Packet Day 8

Similar Triangles

Postulate 7-3-1 Angle-Angle (AA) Similarity

POSTULATE	HYPOTHESIS	CONCLUSION
If two angles of one triangle are congruent to two angles of another triangle, then the triangles are similar.		$\triangle ABC \sim \triangle DEF$

Example: Explain why the triangles are similar and write a similarity statement.

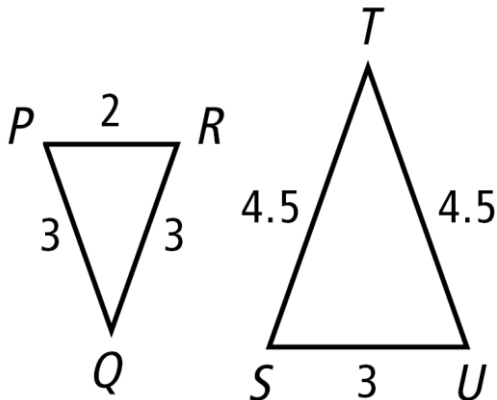


$\angle ACB \cong \angle ECD$ by the Vertical Angle Theorem, with the two right angles in both triangles congruent the triangles are similar by **AA Similarity**. $\triangle ABC \sim \triangle DEC$.

Theorem 7-3-2 Side-Side-Side (SSS) Similarity

THEOREM	HYPOTHESIS	CONCLUSION
If the three sides of one triangle are proportional to the three corresponding sides of another triangle, then the triangles are similar.		$\triangle ABC \sim \triangle DEF$

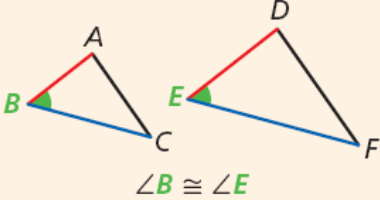
Example: Verify that the triangles are similar.



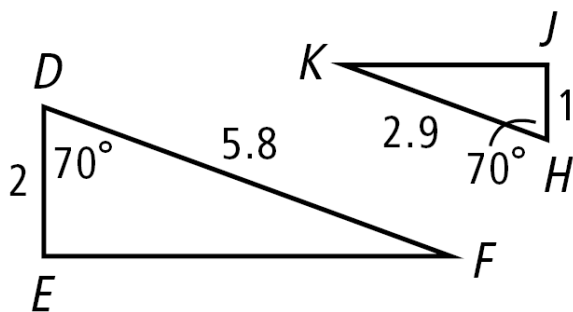
$$\frac{PR}{SU} = \frac{2}{3} \quad \frac{PQ}{TS} = \frac{3}{4.5} = \frac{2}{3} \quad \frac{RQ}{TU} = \frac{3}{4.5} = \frac{2}{3}$$

Since all three pairs of corresponding sides are proportional, the triangles are similar by **SSS Similarity**.

Theorem 7-3-3 Side-Angle-Side (SAS) Similarity

THEOREM	HYPOTHESIS	CONCLUSION
If two sides of one triangle are proportional to two sides of another triangle and their included angles are congruent, then the triangles are similar.	 $\angle B \cong \angle E$	$\triangle ABC \sim \triangle DEF$

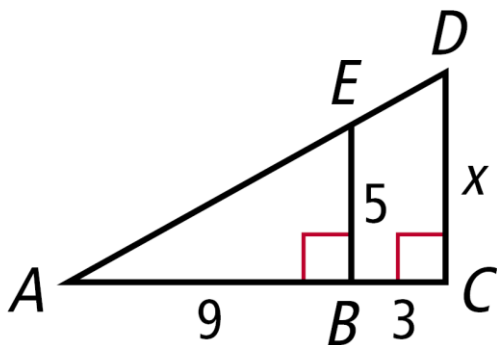
Example: Verify that the triangles are similar.



$$\angle D \cong \angle H, \frac{DE}{JH} = \frac{2}{1}, \frac{DF}{KH} = \frac{5.8}{2.9} = \frac{2}{1}$$

Since two sides of one triangle are proportional to two sides of another triangle and the included angles are congruent, the two triangles are similar by **SAS Similarity**.

Example: Explain why $\triangle ABE \sim \triangle ACD$, and then find CD .



$\angle A \cong \angle A$ by the Reflexive Property

$\triangle ABE \sim \triangle ACD$ by AA Similarity

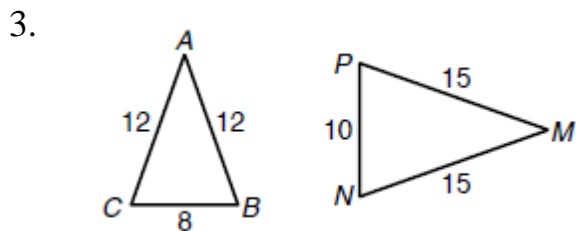
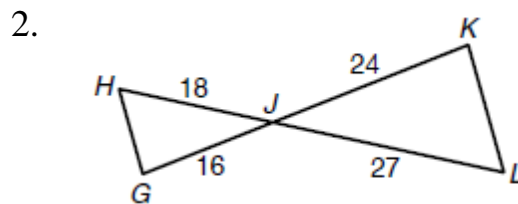
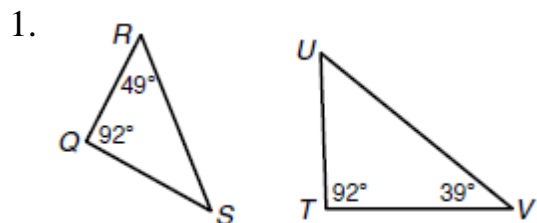
$$\frac{9}{12} = \frac{5}{x}$$

$$9x = 60$$

$$x = 6.\bar{6}$$

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Similar Triangles

Explain how you know the triangles are similar (AA, SSS, or SAS Similarity). Then write a similarity statement.



Explain why the triangles are similar. Then find each length.

