

Triangles can be proved congruent by SSS, SAS, AAS, ASA and HL.

Triangles can be proved Similar (~) using the following 3 theorems:

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.		$\triangle ABC \sim \triangle DEF$

* \angle 's are \cong
* sides are proportional

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.		$\triangle ABC \sim \triangle DEF$

1

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

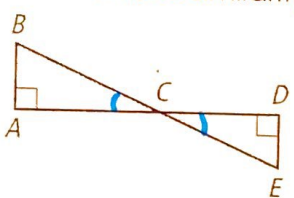
THEOREM	HYPOTHESIS	CONCLUSION
If two sides of one triangle are proportional to two sides of another triangle and their included angles are congruent, then the triangles are similar.		$\triangle ABC \sim \triangle DEF$

$$\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$$

2

$$\frac{AB}{DE} = \frac{BC}{EF}$$

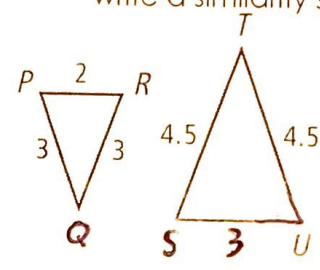
1. Explain why the triangles are similar and write a similarity statement.



* mark the vertical \angle 's \cong .

* Because 2 \angle 's are \cong ,
($\triangle BAC \sim \triangle EDC$ by AA~)

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



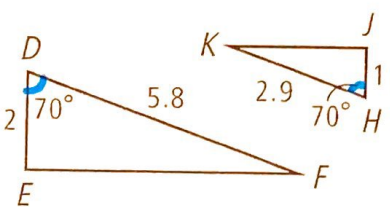
$\triangle PRQ \sim \triangle SUT$
by SSS~

* show work to see if sides are proportional.

$$\frac{2}{3} = \frac{3}{4.5} = \frac{3}{4.5}$$

$$\frac{2}{3} = \frac{3}{4.5} \checkmark \quad .\bar{6} = .\bar{6} = .\bar{6} \checkmark$$

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

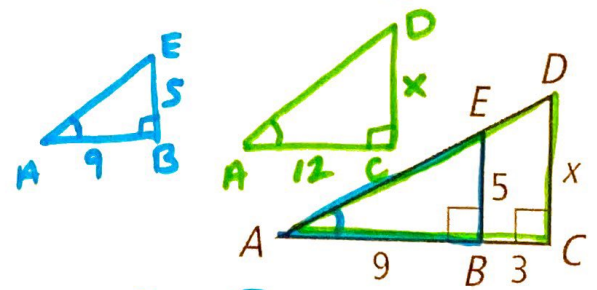


$\triangle DEF \sim \triangle HJK$
by SAS~

* we have one set of \cong included \angle 's (70°).

* check to see if sides are proportional. $\frac{1}{2} = \frac{2.9}{5.8} \Rightarrow \frac{1}{2}$ or .5 \checkmark

4. If $\triangle ABE \sim \triangle ACD$. Find CD



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

$$9(x) = 12(5)$$

$$\frac{9x}{9} = \frac{60}{9}$$

$x = \frac{20}{3}$ or 6.67