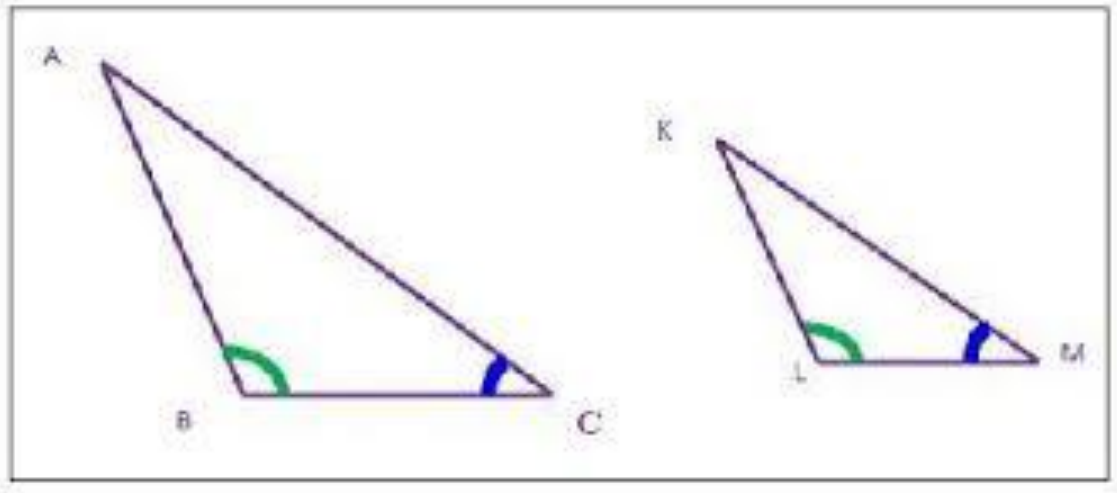
6.3
Prove Triangles Similar by AA

Angle-Angle Similarity Postulate (AA)

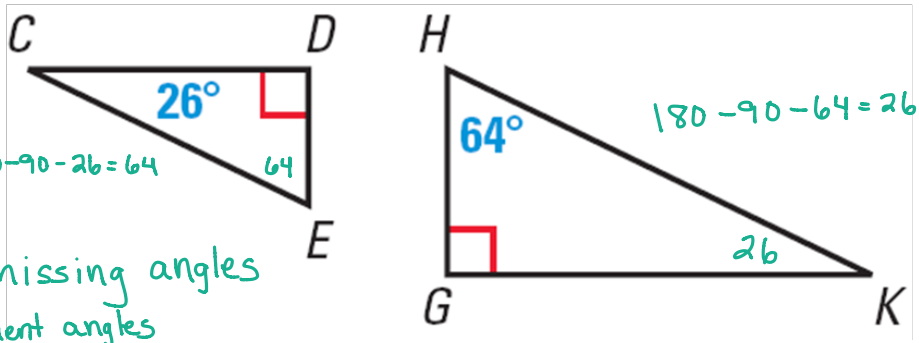
- If 2 angles of one triangle are congruent to 2 angles of another triangle, the triangles are similar (same shape but not same size).



$\angle B \cong \angle L$
$\angle C \cong \angle M$
$\longrightarrow$ $\triangle ABC \sim \triangle KLM$

EX:

Determine whether the triangles are similar. If they are, write a similarity statement. Explain your reasoning.



* Find missing angles
* 2 congruent angles

* yes $\triangle DEC \sim \triangle GHK$ by AA

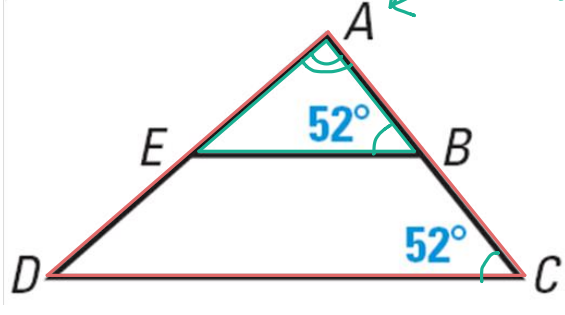
↑ Similarity statement

↑ Explanation

EX: Show that the triangles are similar.

a.

ΔABE **and** ΔACD



Common angle

Show 2 congruent angles

$\angle EAB \cong \angle DAC$

and

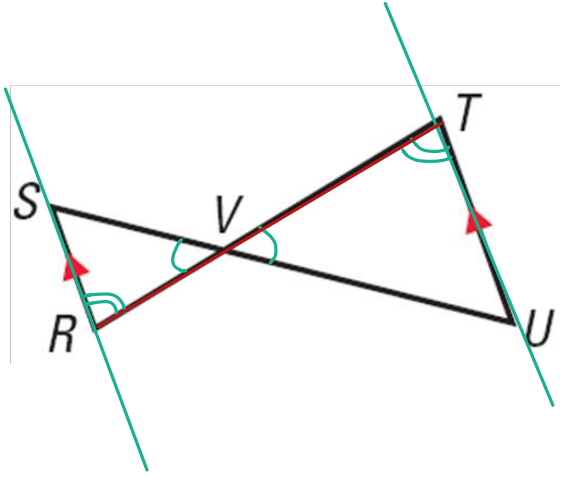
$\angle ABE \cong \angle ACD$

therefore

$\Delta EAB \sim \Delta DAC$ by AA

b.

ΔSVR and ΔUVT



Show 2 congruent angles

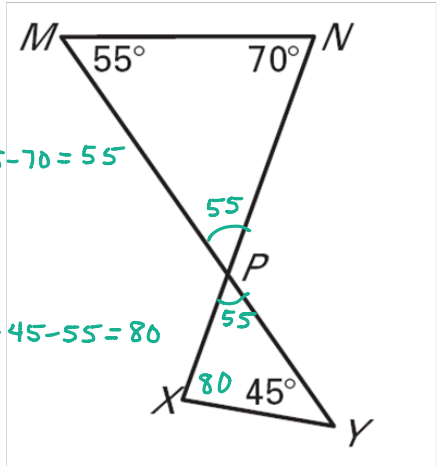
$\angle V \cong \angle V$ (vertical angles)

$\angle SRV \cong \angle UTV$ (parallel lines - alternate interior angles)

$\Delta SVR \sim \Delta UVT$ by AA

EX:

Determine if the two triangles are similar. If they are write a similarity statement.



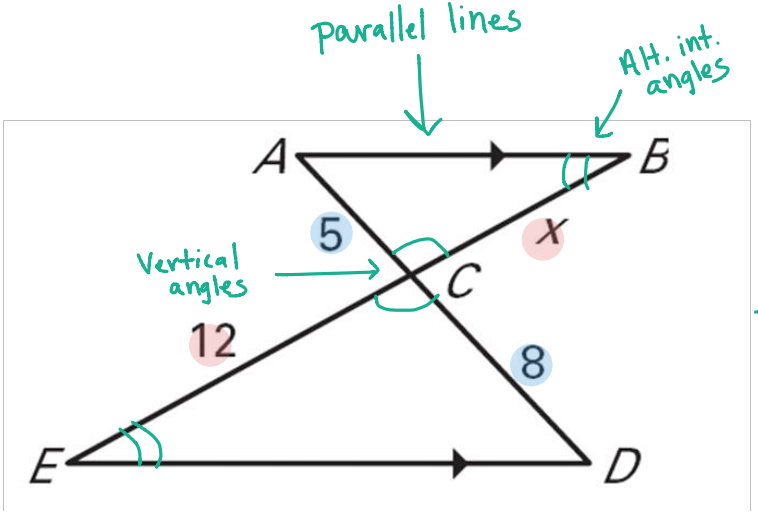
* Find missing angles

NO - the triangles do not have 2 congruent angles so they are not similar

EX:

Find the length of $\overline{BC}$

3.



* Triangles are similar because 2 angles are congruent (vertical angles and alternate interior angles)

* So we can set up a proportion to solve for x:

$$\frac{x}{12} = \frac{5}{8}$$

$$\frac{8x}{8} = \frac{60}{8}$$

$$\boxed{x = 7.5}$$