

## Angle-Angle Similarity Postulate (AA~)

THE SUM OF THE ANGLES IN A TRIANGLE ARE:  $180^\circ$

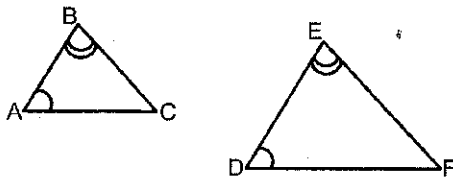
Therefore, if two angles are the same, then by default the last angle is the same.

If two angles of one triangle are congruent to two angles of another triangle, then the triangles are similar.

### Step 1: Identify 2 pairs of congruent angles

You may need to use vertical angles, corresponding angles (if lines are parallel), alternate interior angles (if lines are parallel) or common angles

In this case,  $\angle A \cong \angle D$  and  $\angle B \cong \angle E$  (notice the number of tick marks)

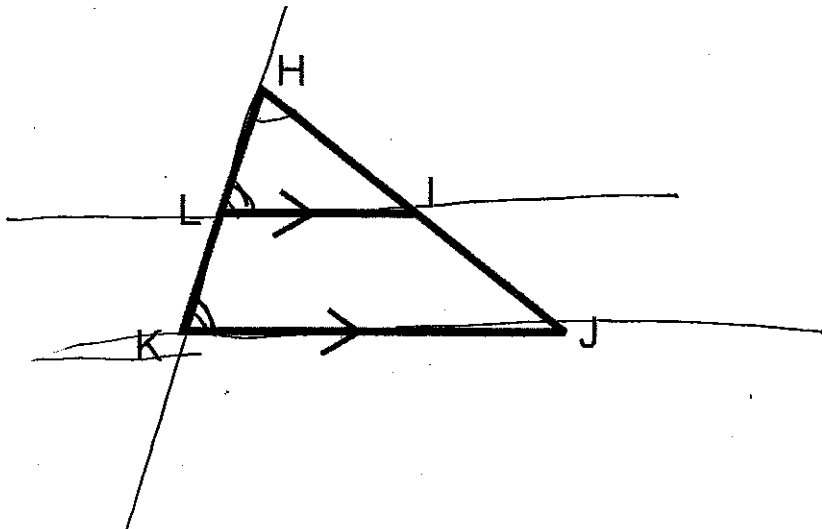


### Step 2: Write the similarity statement (make sure order is correct)

$\triangle ABC \sim \triangle DEF$  (A and D have 1 tick mark, B and E have 2 tick marks, C and F hasn't been marked)

You try!

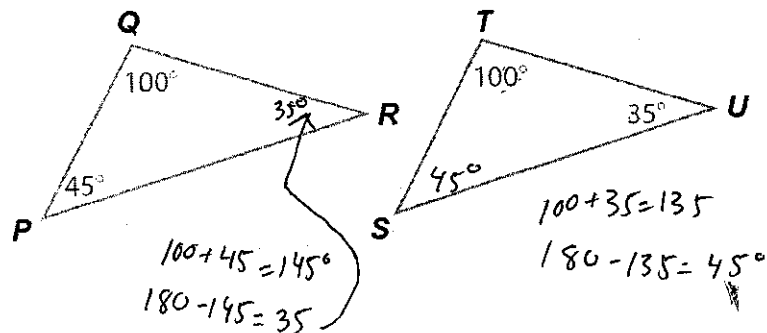
- Hint: ARROWS MEAN PARALLEL! Look for corresponding angles



$\angle LHI \cong \angle KHJ$  (same angle)  
 $\angle HLI \cong \angle HKJ$  (corresponding angles)

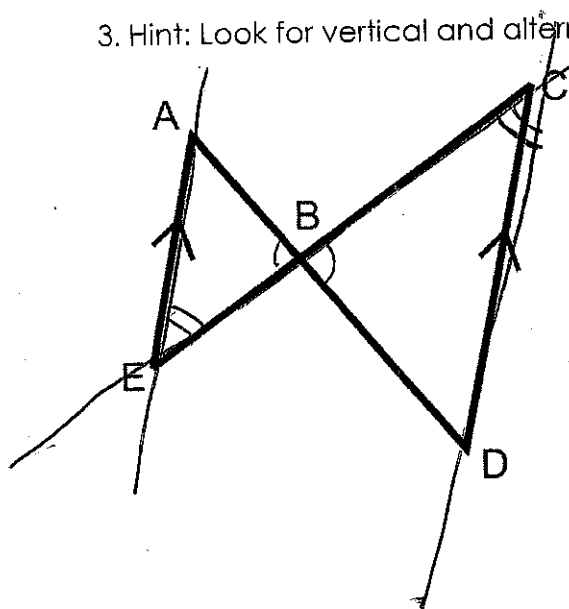
$\triangle HLI \sim \triangle HKJ$

2. Hint: Remember all angles in a triangle add up to 180 degrees!



$$\triangle PQR \sim \triangle STU$$

3. Hint: Look for vertical and alternate interior angles



$$\angle ABE \cong \angle CBD \text{ (vertical)}$$

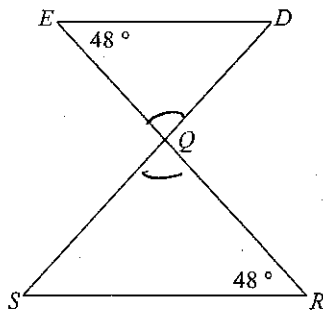
$$\angle AEB \cong \angle BCD \text{ (alternate interior angles)}$$

$$\triangle AEB \cong \triangle DCB$$

Angle Angle Similarity

State if the triangles in each pair are similar. If so, state how you know they are similar and complete the similarity statement.

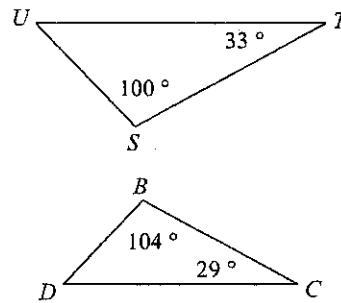
1)



$\Delta QRS \sim \Delta QED$

$\angle DEQ \cong \angle SRQ$  (given)  
 $\angle EQD \cong \angle SQR$  (vertical)

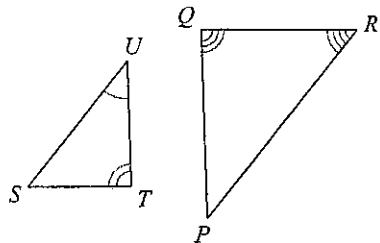
2)



$\Delta STU \sim$  \_\_\_\_\_

No, Not similar

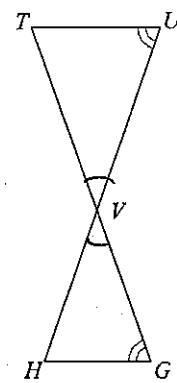
3)



$\Delta PQR \sim$  \_\_\_\_\_

Not similar

4)

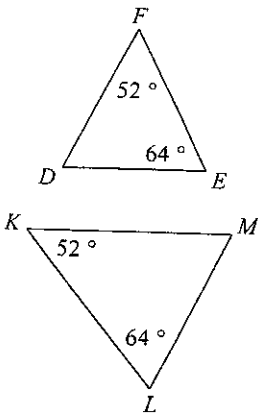


$\Delta VUT \sim \Delta VGH$

$\angle UV \cong \angle VGH$   
 (given)

$\angle TVU \cong \angle HVG$  (vertical)

5)

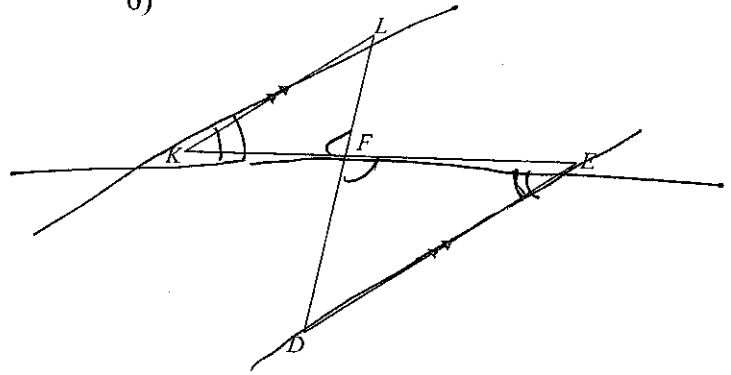


$$\Delta KLM \sim \Delta FED$$

$$\angle DFE \cong \angle MKL \text{ (given)}$$

$$\angle FED \cong \angle KLM \text{ (given)}$$

6)

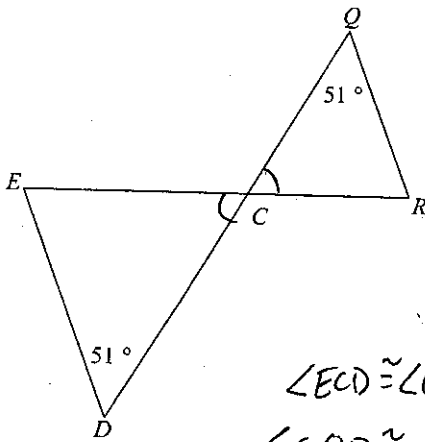


$$\Delta FED \sim \Delta FKL$$

$$\angle LFK \cong \angle EFD \text{ (vertical)}$$

$$\angle FED \cong \angle LKF \text{ (Alternate Interior)}$$

7)

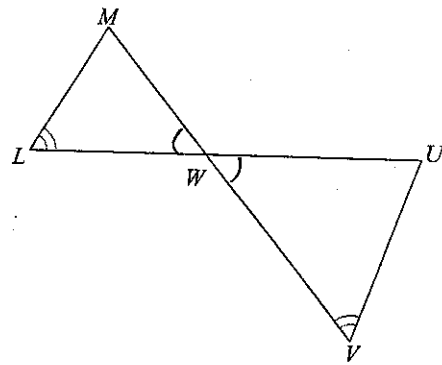


$$\angle ECD \cong \angle QCR \text{ (vertical)}$$

$$\angle CQR \cong \angle EDC \text{ (given)}$$

$$\Delta CDE \sim \Delta CQR$$

8)



$$\Delta WVU \sim \Delta WLM$$

$$\angle MLW \cong \angle UVW \text{ (given)}$$

$$\angle MWL \cong \angle UWV \text{ (vertical)}$$