

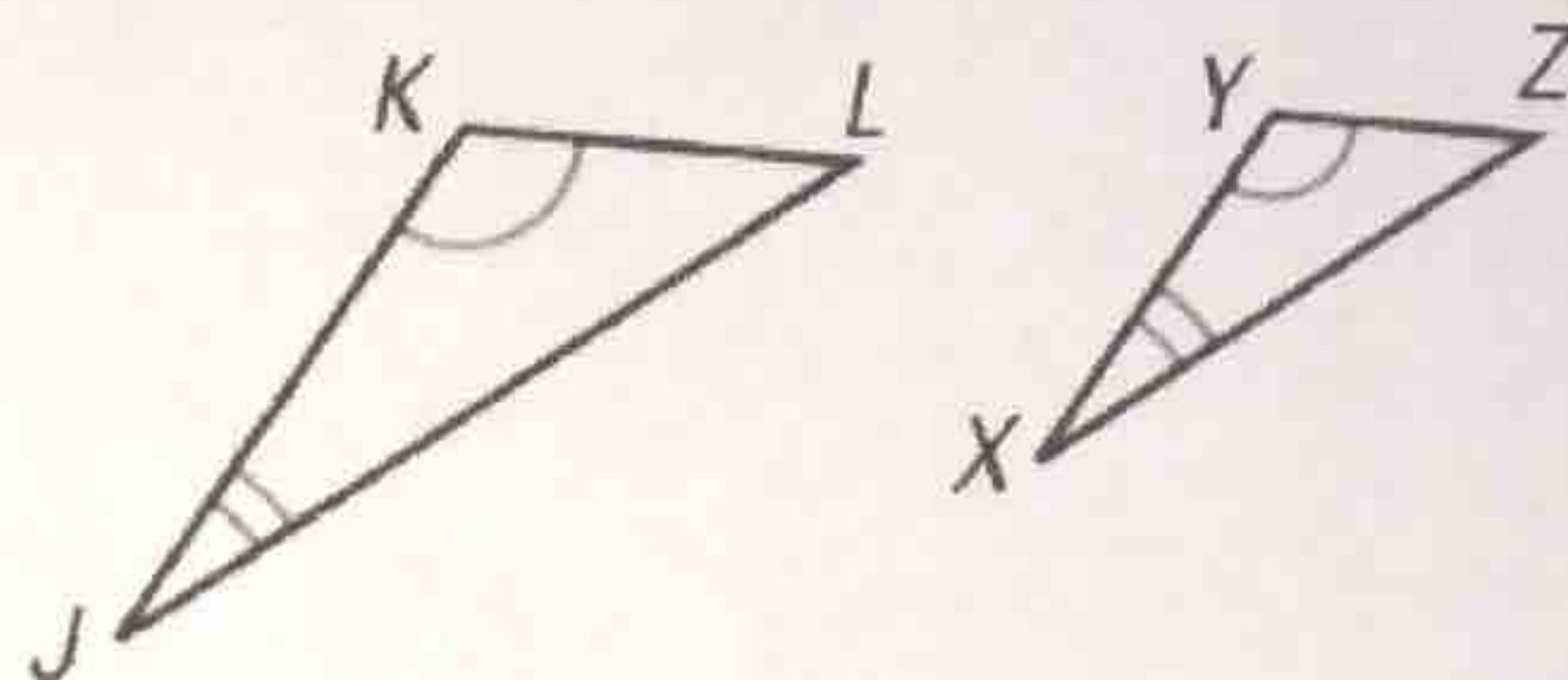
6.4 Prove Triangles Similar by AA

POSTULATE

For Your Notebook

POSTULATE 22 Angle-Angle (AA) Similarity Postulate

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



$$\triangle JKL \sim \triangle XYZ$$

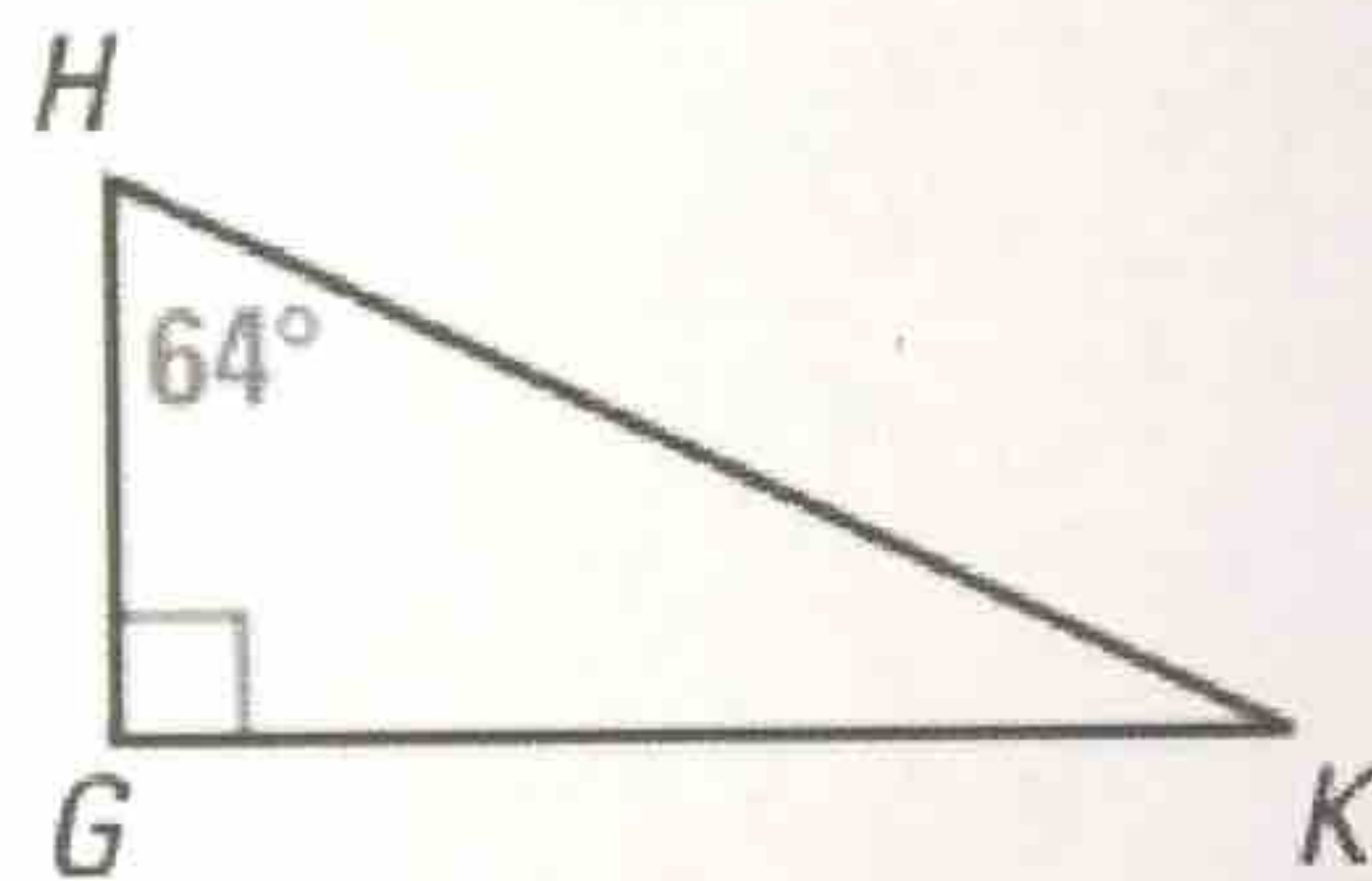
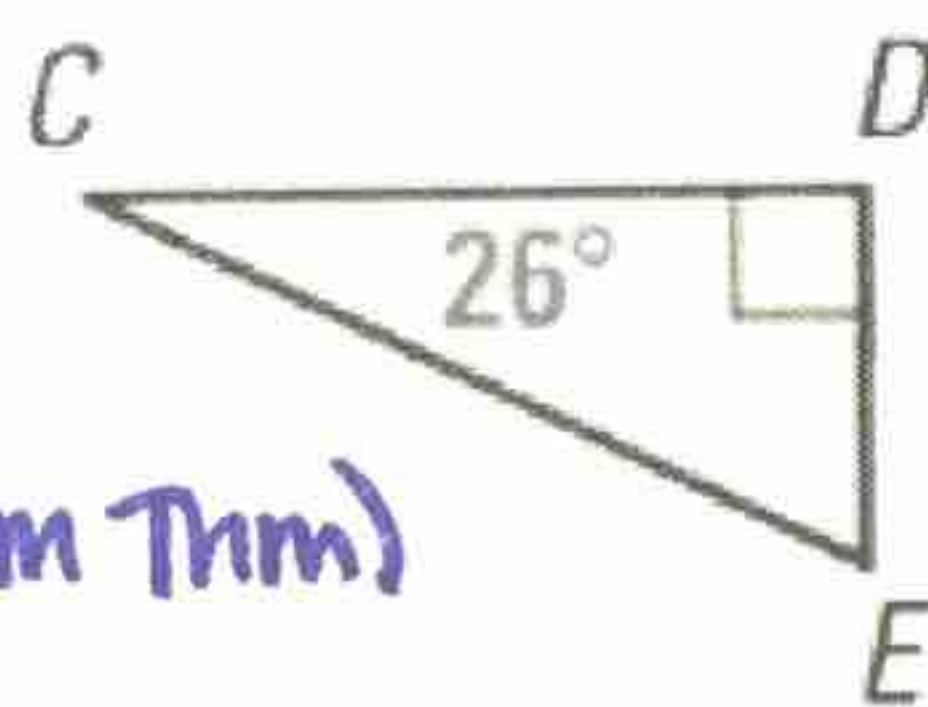
Ex 1: Determine whether the triangles are similar. If they are, write a similarity statement. Explain your reasoning.

$$\angle D \cong \angle G \text{ (Right angles)}$$

$$26^\circ + 90^\circ + m\angle E = 180^\circ \text{ (}\triangle\text{sum Thm)}$$

$$m\angle E = 64^\circ$$

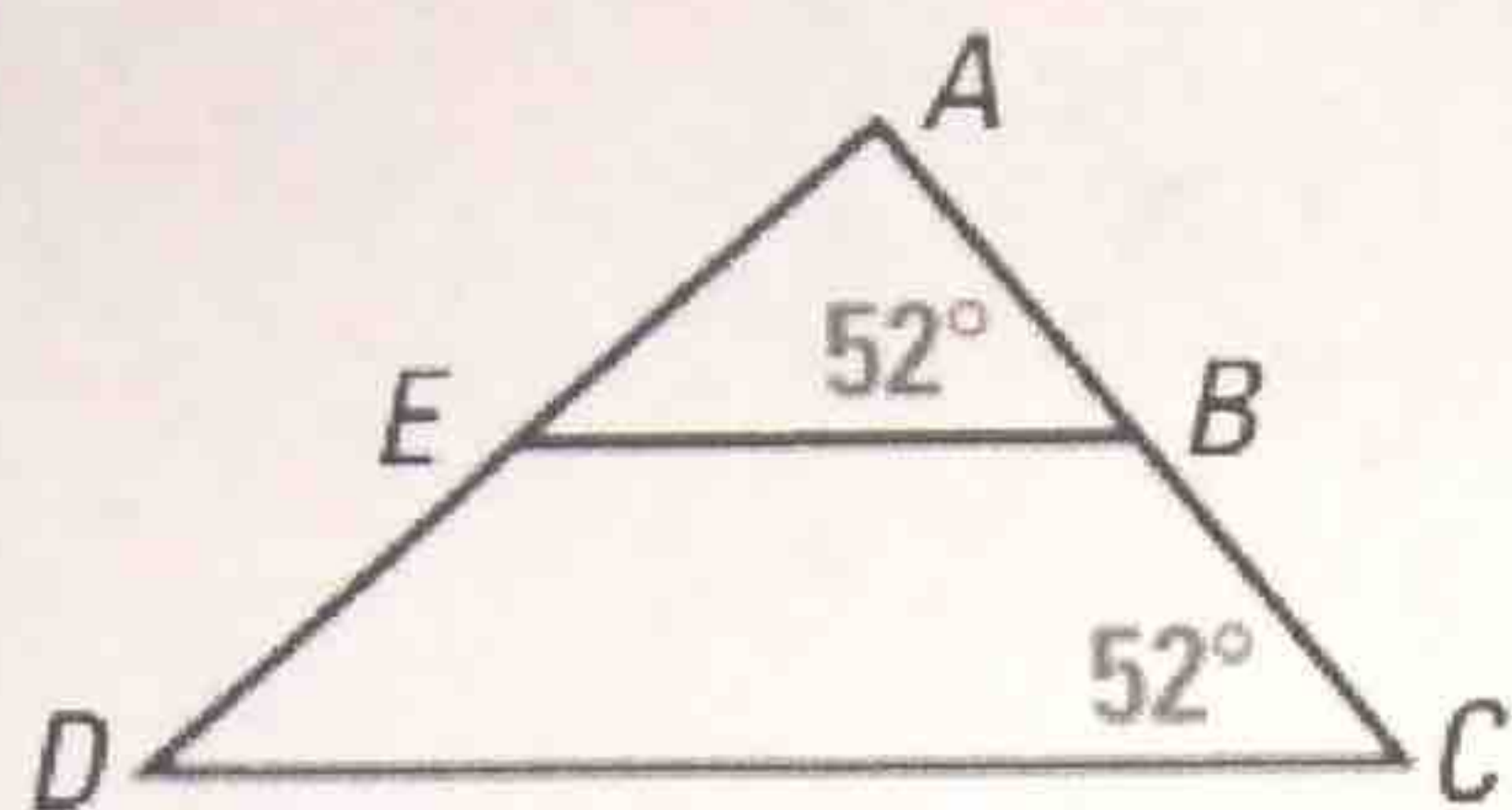
$$\angle E \cong \angle H$$



So $\triangle CDE \sim \triangle KHG$ by the AA Similarity Postulate

Show that the 2 triangles are similar.

Ex 2:

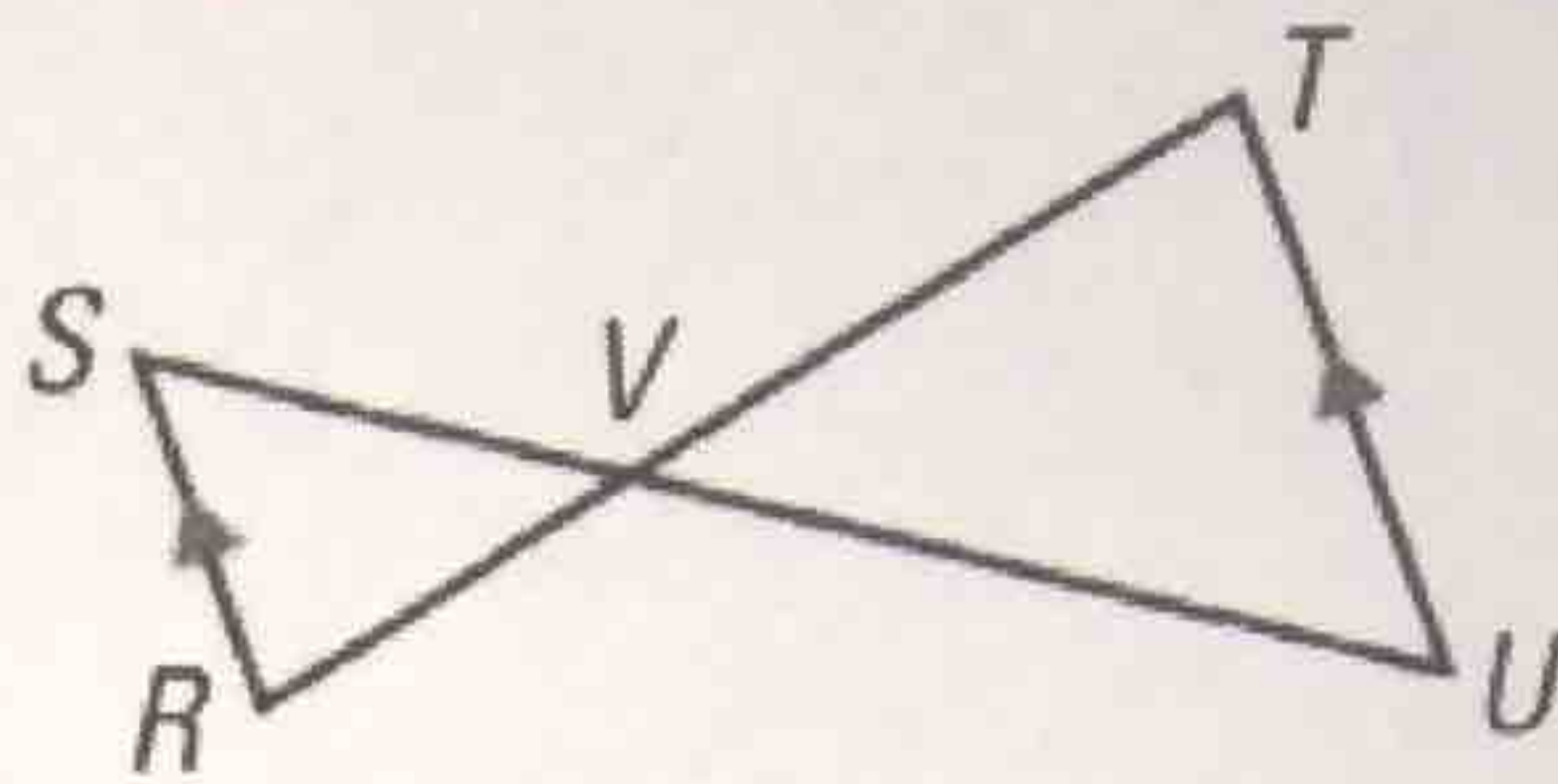


$$\angle ABE \cong \angle ACD$$

$$\angle A \cong \angle A \text{ (Reflexive)}$$

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

Ex 3:



$$\angle SVR \cong \angle UVT \text{ (Vertical \(\angle\))}$$

Since $\overline{RS} \parallel \overline{UT}$, $\angle S \cong \angle U$
by Alternate Interior
Angles Theorem

$\triangle SVR \sim \triangle UVT$ by the
AA Similarity Postulate

Ex 3: A flagpole casts a shadow that is 50 feet long. At the same time a woman standing nearby who is 5 feet 4 inches tall casts a shadow that is 40 inches long. How tall is the flagpole to the nearest foot?

$$5'4'' = 64''$$

$$50' = 600''$$

$$\frac{64 \text{ in}}{x \text{ in}} = \frac{40 \text{ in}}{600 \text{ in}}$$

$$\frac{64}{x} = \frac{1}{15}$$

$$x = 960 \text{ in}$$

$$x = 80 \text{ ft}$$

