

Warm up

$$(x+4)(3x-2)$$

$$\begin{matrix} 3x^2 - 2x + 12x - 8 \\ 3x^2 + 10x - 8 \end{matrix}$$

$$x^4 \cdot x^3 = x^7$$

$$\frac{4x}{x+2} = \frac{8x-1}{2x+3}$$

$$4x(2x+3) = (x+2)(8x-1)$$

$$\begin{matrix} 8x^2 + 12x = 8x^2 - x + 16x - 2 \\ \cancel{8x^2} + 12x = \cancel{8x^2} - x + 16x - 2 \\ 12x = 15x - 2 \\ -3x = -2 \\ x = \frac{2}{3} \end{matrix}$$

$$3x^2 = 27$$

$$\frac{3x^2}{3} = \frac{27}{3}$$

$$\sqrt{x^2} = \sqrt{9}$$

$$x = 3$$

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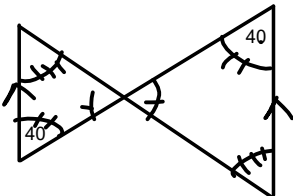
Section 7.3 Proving Triangles are Similar

We can use similar triangles to indirectly measure the height of a tree or the height of a building.

Postulate 7.1

**AA similarity Postulate:** If two angles of one triangle are congruent to two angles of another triangle, then the triangles are similar.

Example: Explain why the triangles are similar

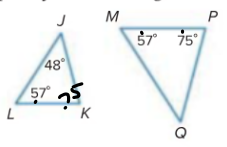


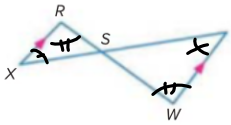
AA Sim

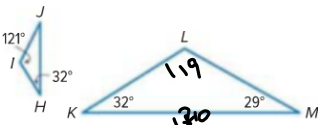
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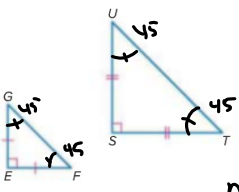
**Example 1** Use the AA Similarity Postulate

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

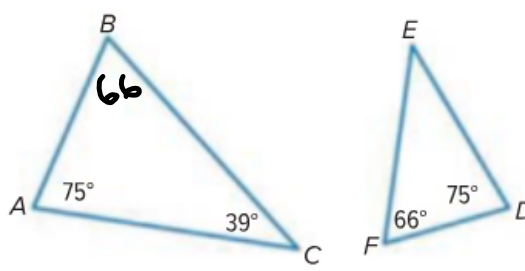
a.  AA sim  
 $\triangle LJK \sim \triangle MPO$

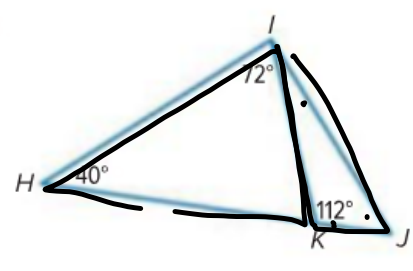
b.  AA sim  
 $\triangle STW \sim \triangle SXR$

c.  NOT similar

d.  AA similarity  
 $\triangle GEF \sim \triangle SUT$

Jan 24-8:43 AM

1A.  AA ~  
 $\triangle ABC \sim \triangle FED$

1B.  NOT similar

Jan 24-8:45 AM

**Example 3** Parts of Similar Triangles

Find BE and AD.

Scale factor

$$\frac{3}{5} = \frac{x}{3.5}$$

$$\frac{3}{5} = \frac{y}{3+y}$$

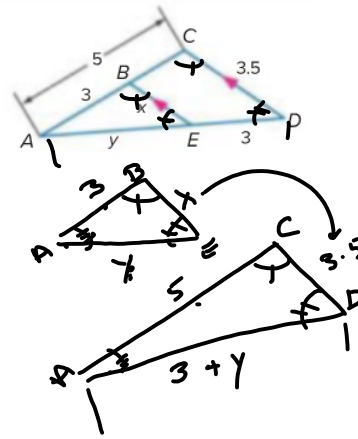
$$10.5 = 5x$$

$$x = 2.1$$

$$9 + 3y = 5y$$

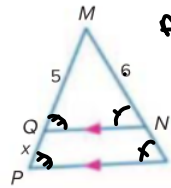
$$9 = 2y$$

$$y = 4.5$$



Find each measure.

3A. QP and MP



AA ~

Scale factor

$$\frac{MN}{MO} = \frac{6}{9} = \frac{6}{9} = \frac{2}{3}$$

$$\frac{MQ}{MN} = \frac{5}{6} = \frac{5}{6}$$

~~$$\frac{5}{6} = \frac{5}{5+x}$$~~

$$25 + 5x = 40$$

$$5x = 15$$

$$x = 3$$

$$QP = 3$$

$$MP = 5 + 3 = 8$$

Jan 24-8:47 AM