

2 x bigger

2.

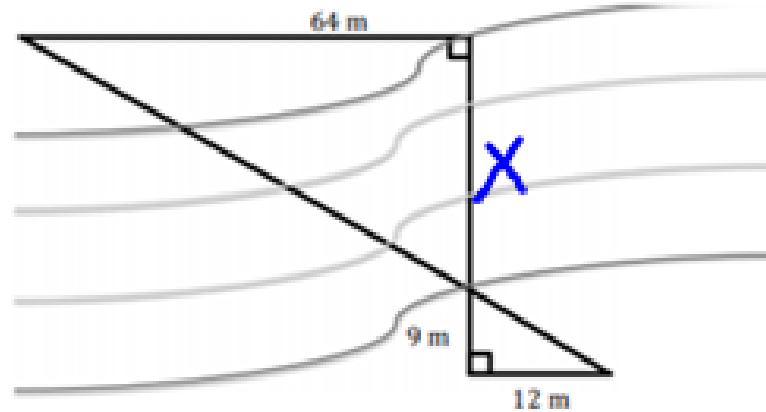
Prove  $\Delta ACB \sim \Delta PQR$  by applying properties of transformations. Justify your steps.

$$\begin{array}{r}
 P(-1, 4) \\
 \hline
 \times 2 \quad \times 2 \\
 \hline
 -2, 8
 \end{array}$$

$$A(-2, 8)$$

$$(x, y) \rightarrow (2x, 2y)$$

3. A surveyor is measuring the width of a river for a future bridge.



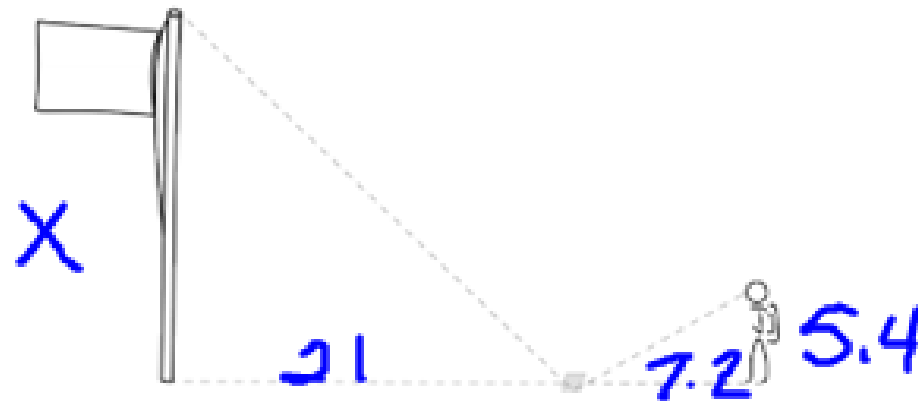
- a. What similarity criterion can be used to prove that the triangles are similar?

$AA \sim$  or  $SAS \sim$

- b. Use the properties of similar triangles to set up a proportion and determine the width of the river.

$$\frac{x}{9} = \frac{64}{12} \quad 12x = 576$$
$$x = 48 \text{ m}$$

4. Mrs. Robinson assigned her class a project to find the height of the flagpole. The students could not easily measure the height, so they had to use their knowledge of similar triangles to determine the height of the flagpole. One student placed a mirror on the ground 21 feet from the base of the flagpole and backed up until the reflection of the top of the pole was centered in the mirror.



Part A: If the student is 5.4 feet tall and is standing 7.2 feet from the mirror, how tall is the flagpole?

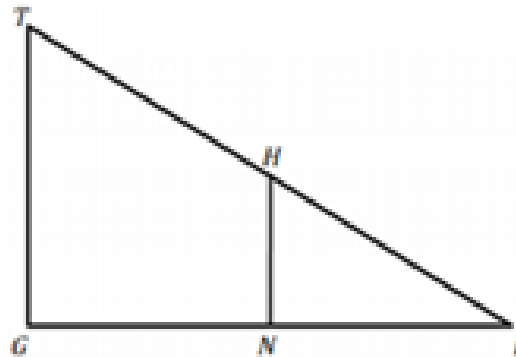
$$\frac{21}{7.2} = 2.9167 (5.4) = 15.8 \text{ ft}$$

Part B: Describe another way to use similarity of triangles to find the height of the flagpole.

$$\frac{X}{5.4} = \frac{21}{7.2}$$

**Your turn:**

Which of the following could be used to prove that  $\triangle HIN$  and  $\triangle TIG$  are similar? Select all that apply.

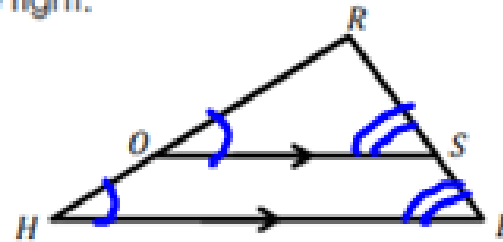


- $N$  is the midpoint of  $\overline{GI}$
- $\overline{TG} \parallel \overline{HN}$
- $\angle T \cong \angle I$
- $\overline{TG} \perp \overline{GI}$
- $\overline{HN}$  bisects  $\overline{TG}$  and  $\overline{TI}$
- $\triangle TIG$  is dilated by a scale factor less than 1 centered at point  $I$ .

Consider the diagram to the right.

Given:  $\overline{OS} \parallel \overline{HE}$

Prove:  $\frac{OH}{OR} = \frac{SE}{RS}$



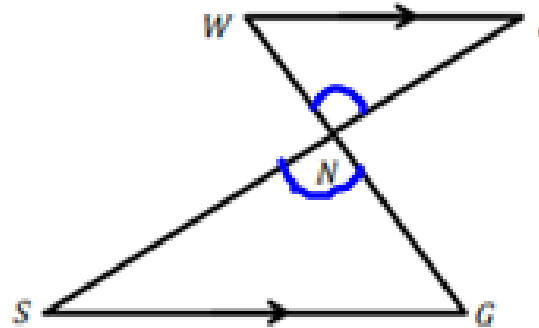
Complete the following two-column proof.

Statements	Reasons
1. $\overline{OS} \parallel \overline{HE}$	1. Given
2. $\angle ROS \cong \angle RHE$ , $\angle RSO \cong \angle REH$	2. Corr $\angle$ 's
3. $\triangle ROS \sim \triangle RHE$	3. AA Similarity Criterion
4. $\frac{OR}{RH} = \frac{OS}{HE}$	4. Def of $\sim \triangle$ 's
5. $\frac{OR + OS}{OR} = \frac{RH + OS}{RS}$	5. Segment Addition Postulate
6. $\frac{OR}{OR} + \frac{OS}{OR} = \frac{RH}{RS} + \frac{OS}{RS}$	6. Substitution
7. $1 + \frac{OS}{OR} = 1 + \frac{OS}{RS}$	7. Substitution
8. $\frac{OH}{OR} = \frac{OS}{RS}$	8. Subtraction Property of Equality

2. Consider the diagram to the right.

Given:  $\overline{WI} \parallel \overline{SG}$

Prove:  $\frac{WN}{NG} = \frac{WI}{SG}$



Complete the following two-column proof.

Statements	Reasons
1. $\overline{WI} \parallel \overline{SG}$	1. Given
2. $\angle WNI \cong \angle GNS$	2. Vertical $\angle$ 's
3. $\angle S \cong \angle I$	3. Alternate Interior Angles Theorem
4. $\triangle WNI \sim \triangle GNS$	4. AA~ Criterion
5. $\frac{WN}{NG} = \frac{WI}{SG}$	5. Def of $\sim \Delta$ 's