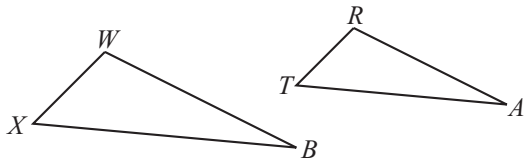
NAME_____

Module 8 **Points, Lines, Angles, and Triangles**
Lesson 6 **Similar Triangles**

Independent Practice 8.6

1. In the figure at right, $\triangle WXB \sim \triangle RTA$. List the corresponding sides and congruent angles.

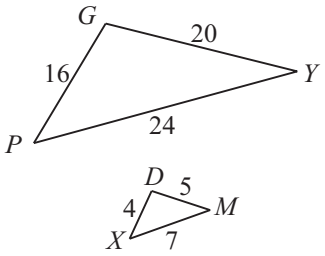


$\overline{WX}$ corresponding to $\overline{RT}$
$\overline{XB}$ corresponding to $\overline{TA}$
$\overline{WB}$ corresponding to $\overline{RA}$

$\angle W \cong \angle R,\ \angle X \cong \angle T, \angle B \cong \angle A$

Determine if the triangles are similar. If so, write a similarity statement. If not, explain why not.

2.

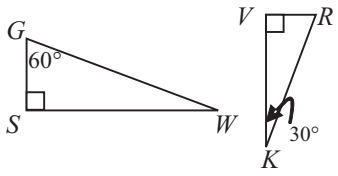


$\frac{16}{4} = \frac{4}{1}$

$\frac{24}{7} \neq \frac{4}{1}$

No: Sides are not proportional.

3.

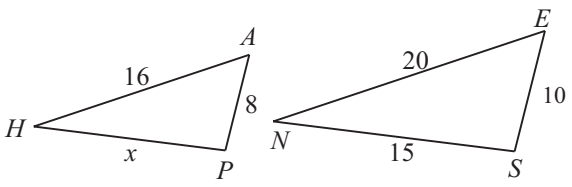


$\angle W \cong \angle K$
$\angle S \cong \angle V$
$\angle G \cong \angle R$

Yes: AA Similarity Rule

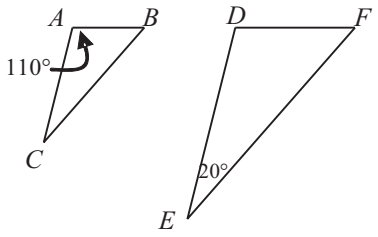
$\triangle GSW \sim \triangle RVK$

4. $\triangle HAP \sim \triangle NES$. Find the value of x.



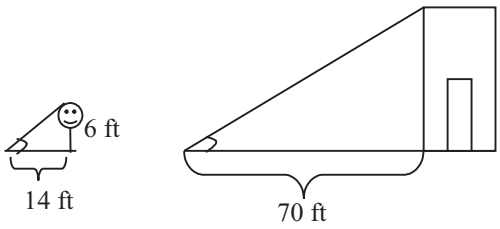
$x = 12$

5. $\triangle ABC \sim \triangle DFE$
Find all the missing angle measures.



$m\angle B = 50°$, $m\angle C = 20°$
$m\angle D = 110°$, $m\angle F = 50°$

6. Clark makes a 14-foot shadow at the same time a nearby building makes a 70-foot shadow.
Clark is six feet tall.
Find the height of the building.

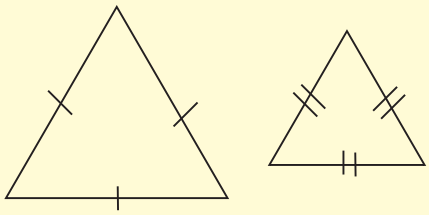


30 feet

Journal

1. How are similar and congruent triangles alike? How are they different?

2. Explain how you know the triangles below are similar without knowing the measures of the sides.



3. Describe two ways to prove two triangles are similar.

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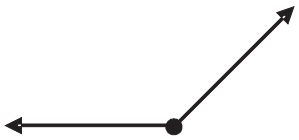
Cumulative Review

Estimate the angle's measure and classify the angle.

1.



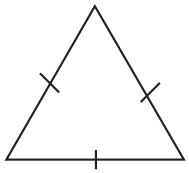
About 135°: Obtuse

2.

About 25°: Acute

Classify the triangle by its sides and by its angles.

3.



Equilateral: Acute

4.

Right: Scalene

5. Tito drew a triangle with side lengths of 12 inches, 12 inches, and 15 inches. Classify Tito's triangle by its side lengths.

Isosceles

6. Draw two congruent right isosceles triangles.

7. Draw two congruent equiangular triangles.

8. $\triangle TOP \cong \triangle LEF$

If $\overline{TP}$ has a length of 15 centimeters, what side in $\triangle LEF$ must also have a measure of 15 centimeters?

$\overline{LF}$

9. $\triangle HAS \cong \triangle NOT$

If $m\angle H = 40°$ and $m\angle S = 30°$, what is $m\angle O$?

$m\angle O = 110°$

Possible Journal Answers

1. **In both similar and congruent triangles, the corresponding angles are congruent. This means they have the same shape, but congruent triangles must also be the same size. Similar triangles can be different sizes.**

2. **The measurements are not known; however, it is known that all the sides in the first triangles are congruent and all the sides in the second triangle are congruent. That means that when ratios are made comparing one side of the first triangle to one side of the second triangle, the ratios will be the same no matter which pair of corresponding sides is chosen.**

   Also, because the sides in each triangle are congruent, the triangles are equilateral, which makes them equiangular. The triangles are similar because all the corresponding angles are congruent.

3. **One way to prove triangles are similar is to show that two pairs of angles in one triangle are congruent to two pairs of angles in the other triangle. This means that all three pairs of angles are congruent, so the triangles have the same shape. Another way is to show that all three pairs of corresponding sides are in proportion.**