

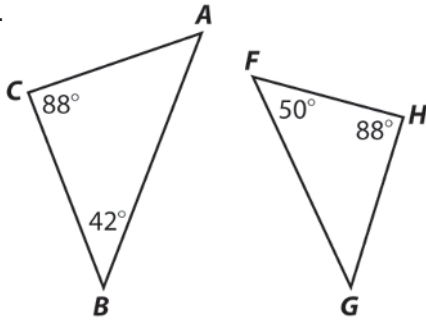
LESSON
11-3

Angle-Angle Similarity

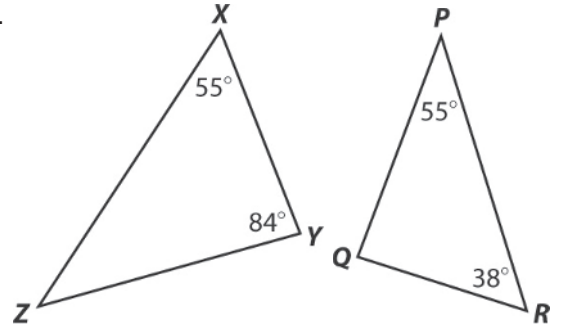
Practice and Problem Solving: A/B

Explain whether the triangles are similar.

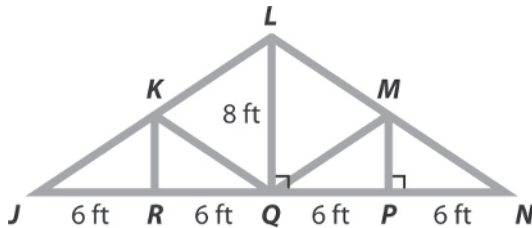
1.



2.



The diagram below shows a Howe roof truss, which is used to frame the roof of a building. Use it to answer problems 3–5.

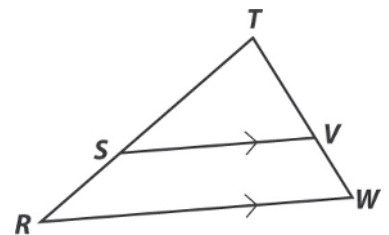


3. Explain why $\triangle LQN$ is similar to $\triangle MPN$.

4. What is the length of support MP ? _____

5. Using the information in the diagram, can you determine whether $\triangle LQJ$ is similar to $\triangle KRJ$? Explain.

6. In the diagram at the right, sides SV and RW are parallel. Explain why $\triangle RTW$ is similar to $\triangle STV$.



LESSON 11-3

Practice and Problem Solving: A/B

- $\triangle ABC$ has angle measures 42° , 50° , 88° , and $\triangle FGH$ has angle measures 42° , 50° , 88° . The triangles are similar because two angles in one triangle are congruent to two angles in the other triangle.
- $\triangle XYZ$ has angle measures 41° , 55° , 84° , and $\triangle PRQ$ has angle measures 38° , 55° , 87° . The triangles are not similar because the triangles have only one congruent pair of angles.
- Both triangles contain both $\angle N$ and a right angle, so $\triangle LQN$ is similar to $\triangle MPN$.
- 4 ft
- No; $\angle J$ is in both $\triangle LQJ$ and $\triangle KRJ$, but there is not enough information given to find any other congruent angles. $\angle R$ looks like a right angle, but it is not given.
- $\angle TSV$ and $\angle TRW$ are congruent because they are corresponding angles, and both triangles contain $\angle T$. By AA similarity, $\triangle RTW$ is similar to $\triangle STV$.

Practice and Problem Solving: C

- $\triangle XYZ$ and $\triangle RQP$ are similar. The triangles are similar because two angles in one triangle are congruent to two angles in the other triangle. Both triangles have angles measures 32° , 84° , 64° .
- No, similar triangles have congruent corresponding angles. However, corresponding sides of similar triangles are proportional, not congruent.
- 17.5 ft
- 20 ft
- $\angle BCA$ and $\angle GHF$ are congruent because they are corresponding angles, and both triangles contain right angles. By AA similarity, $\triangle ABC$ is similar to $\triangle FGH$.
- $H(18, 16)$

Practice and Problem Solving: D

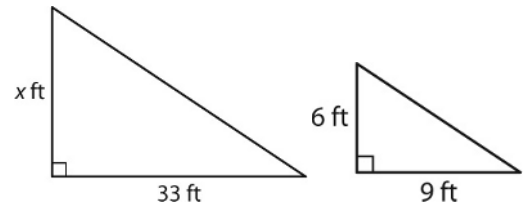
- $m\angle C = 59^\circ$
- $m\angle P = 41^\circ$

3. $m\angle Y = 85^\circ$

4. $m\angle F = 36^\circ$

5. $\triangle ABC$ is similar to $\triangle XYZ$ by AA similarity.

6.



7. Both triangles contain the same angle at the far right, and a right angle, so the triangles are similar.
8. $\frac{6}{9} = \frac{x}{33}$; $x = 22$
9. $m\angle RST = 79^\circ$, $m\angle VWT = 33^\circ$; congruent alternate interior angles were used to find the angle measures.
10. $\triangle RST$ and $\triangle WVT$ are similar by AA similarity since the triangles contain two congruent angles.

Reteach

1.

	Lamp	Sign
Height (ft)	x	8
Length of shadow (ft)	31.5	14

18 ft

2.

	Woman	Son
Height (ft)	5.5	x
Length of shadow (ft)	$3 + 13.5 = 16.5$	13.5

4.5 ft

Reading Strategies

- the length of Zachary's shadow
- the height of the tree
- the distance between the tree and Zachary