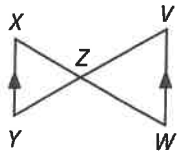
Check Your Understanding

= Step-by-Step Solutions begin on page R14.

Examples 1–2 Determine whether the triangles are similar. If so, write a similarity statement. Explain your reasoning.

1.



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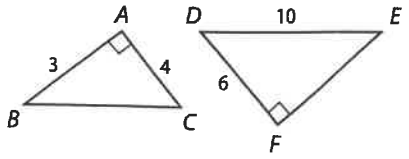

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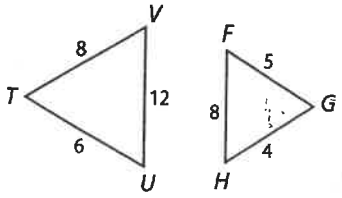

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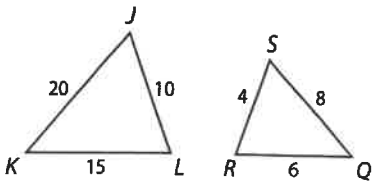
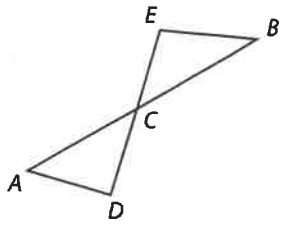


Example 3

5. MULTIPLE CHOICE In the figure, $\overline{AB}$ intersects $\overline{DE}$ at point C. Which additional information would be enough to prove that $\triangle ADC \sim \triangle BEC$?



A $\angle DAC$ and $\angle ECB$ are congruent.

B $\overline{AC}$ and $\overline{BC}$ are congruent.

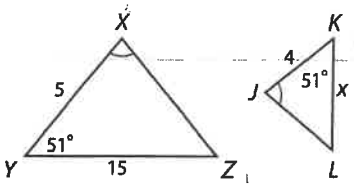
C $\overline{AD}$ and $\overline{EB}$ are parallel.

D $\angle CBE$ is a right angle.

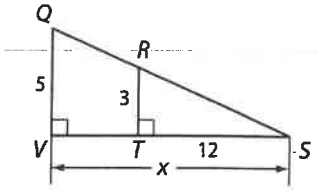
Example 4

CCSS **STRUCTURE** **Identify the similar triangles. Find each measure.**

6. *KL*



7. *VS*



Example 5

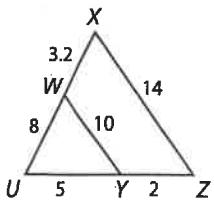
8. COMMUNICATION A cell phone tower casts a 100-foot shadow. At the same time, a 4-foot 6-inch post near the tower casts a shadow of 3 feet 4 inches. Find the height of the tower.

Practice and Problem Solving

Extra Practice is on page R7.

Examples 1–3 Determine whether the triangles are similar. If so, write a similarity statement. If not, what would be sufficient to prove the triangles similar? Explain your reasoning.

9.



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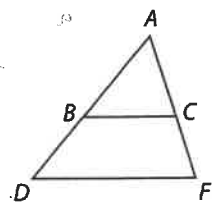

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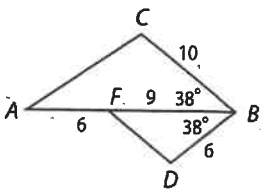
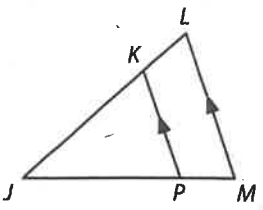


Examples 1–3 **Determine whether the triangles are similar. If so, write a similarity statement. If not, what would be sufficient to prove the triangles similar? Explain your reasoning.**

12.



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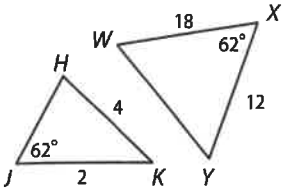
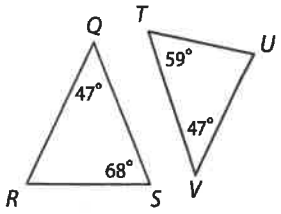
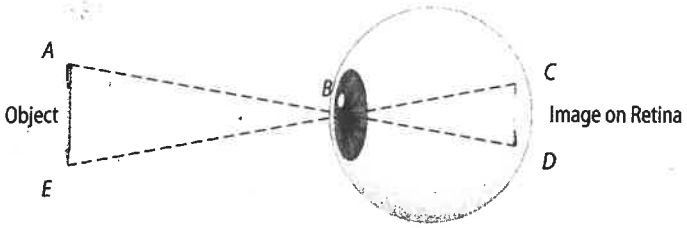


14.

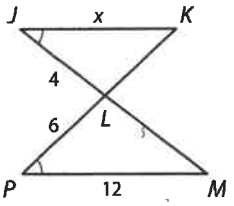


15. **MODELING** When we look at an object, it is projected on the retina through the pupil. The distances from the pupil to the top and bottom of the object are congruent and the distances from the pupil to the top and bottom of the image on the retina are congruent. Are the triangles formed between the object and the pupil and the object and the image similar? Explain your reasoning.

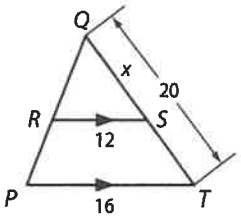


Example 4 **ALGEBRA Identify the similar triangles. Then find each measure.**

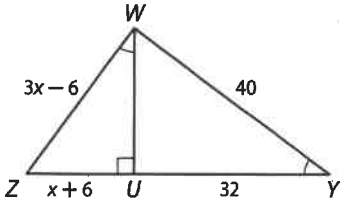
16. *JK*



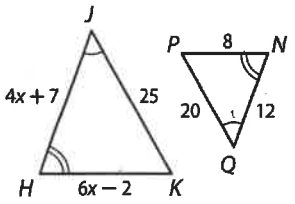
17. *ST*



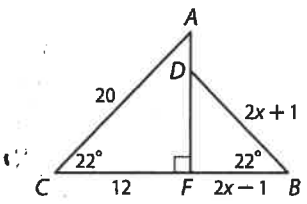
18. *WZ, UZ*



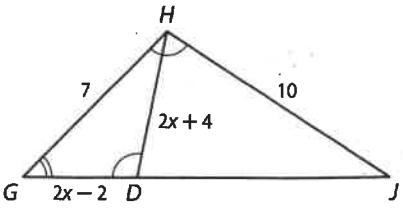
19. *HJ, HK*



20. *DB, CB*



21. *GD, DH*

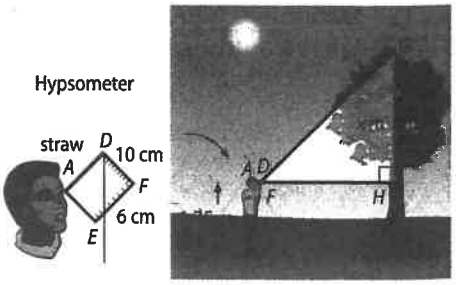


Example 5

22. **STATUES** Mei is standing next to a statue in the park. If Mei is 5 feet tall, her shadow is 3 feet long, and the statue's shadow is $10\frac{1}{2}$ feet long, how tall is the statue?

23. **SPORTS** When Alonzo, who is 5'11" tall, stands next to a basketball goal, his shadow is 2' long, and the basketball goal's shadow is 4'4" long. About how tall is the basketball goal?

24. **FORESTRY** A hypsometer, as shown, can be used to estimate the height of a tree. Bartolo looks through the straw to the top of the tree and obtains the readings given. Find the height of the tree.



PROOF **Write a two-column proof.**

25. Theorem 7.3

26. Theorem 7.4