

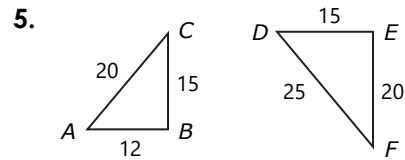
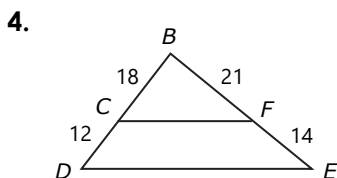
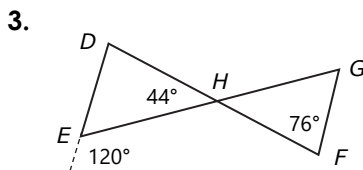
LESSON 165 Review: Similar Triangles

1. Which statement is true about similar polygons? Select all that apply.
- A) Corresponding sides are congruent.
 - B) Corresponding angles are congruent.
 - C) Corresponding sides are proportional.
 - D) Corresponding angles are proportional.

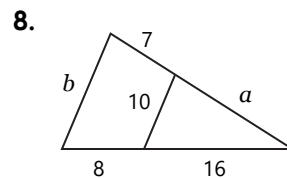
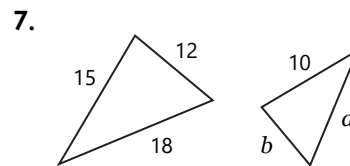
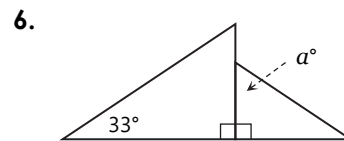
2. Which statement cannot be used to prove that $\triangle ABC$ is similar to $\triangle DEF$?

- A) $\angle A \cong \angle D$ and $\angle B \cong \angle E$
- B) $\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$
- C) $\frac{AB}{DE} = \frac{AC}{DF}$ and $\angle A \cong \angle D$
- D) $\frac{AB}{DE} = \frac{BC}{EF}$ and $\angle C \cong \angle F$

For problems 3 through 5, determine if the triangles are similar. If so, state the reason and the similarity statement.

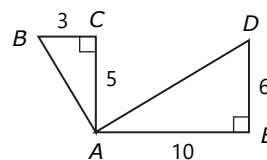


For problems 6 through 8, find the value of the variables that make the triangles similar.

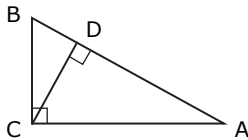


9. Complete the sentence.

A clockwise rotation of $\boxed{?}^\circ$ about A followed by a dilation with a scale factor of $\boxed{?}$ centered at A will map $\triangle ABC$ onto $\triangle DEF$. So, $\triangle ABC \sim \triangle DEF$.

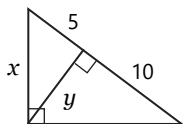


10. \overline{CD} is an altitude of right $\triangle ABC$. Complete the similarity statement



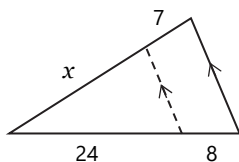
$\triangle ABC \sim \triangle ? \sim \triangle ?$

11. Find the values of x and y in simplest radical form.

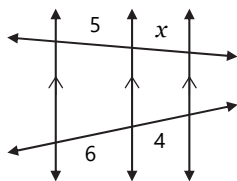


12. The altitude to the hypotenuse of a right triangle divides the hypotenuse into two segments. One segment is four times as long as the other. If the altitude is 10 cm long, what is the length of the shorter segment in simplest radical form?

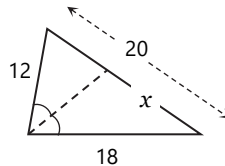
13. The dashed segment is parallel to a side of the triangle. Find the value of x .



14. Three parallel lines are cut by two transversals. Find the value of x .



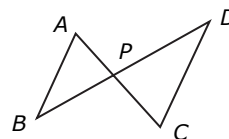
15. The dashed segment is an angle bisector of the triangle. Find the value of x .



16. Complete the proof.

Given: $\angle A \cong \angle C$

Prove: $\frac{PA}{PC} = \frac{PB}{PD}$

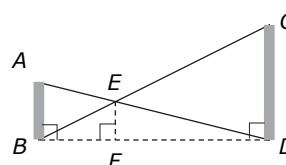


STATEMENTS	REASONS
1. $\angle A \cong \angle C$	1. Given
2. $\angle APB \cong \angle CPD$	2.
3. $\triangle APB \sim \triangle CPD$	3.
4. $\frac{PA}{PC} = \frac{PB}{PD}$	4.

17. A 20-meter flagpole casts a 24-meter shadow. A nearby building is 135 meters tall. How long is its shadow?

18. Kim places a mirror on the ground 20 ft from a tree and stands 5 ft from the mirror where she can see the reflection of the top of the tree. Kim is 4 ft tall. How tall is the tree?

19. (HONORS) Two pillars with heights 12 m and 24 m are connected with wires. The pillars are 48 m apart. How high is the intersection above the ground?



Hint: Let $EF = x$ and $BF = y$. Then you can set up two equations.