Name:_____   Period:_____

SM2 10.3 – Similarity

Fill in the blanks.

1. Two polygons are similar if corresponding angles are _____ and corresponding side lengths are _____.

2. If two polygons are similar, then the ratio of their corresponding sides is called the _____.

Use the diagram below to complete the following statements.
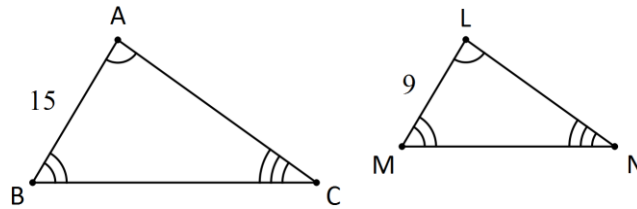
3. $\triangle CAB \sim$ _____

4. $\angle A \cong$ _____

5. $\angle N \cong$ _____

6. $\angle B \cong$ _____

7. $\dfrac{\quad}{LM} = \dfrac{BC}{\quad} = \dfrac{\quad}{NL}$

8. The scale factor is _____.

Solve each equation.
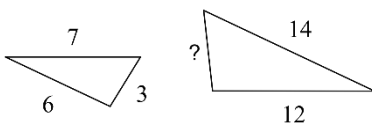
9. $\dfrac{5}{8} = \dfrac{x}{24}$

10. $\dfrac{3}{5} = \dfrac{9}{y}$
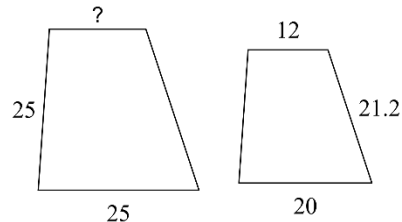
11. $\dfrac{5}{3} = \dfrac{10}{z+2}$

12. $\dfrac{3}{w} = \dfrac{w}{12}$

The polygons in each pair are similar. Find the missing side length. Show your work!
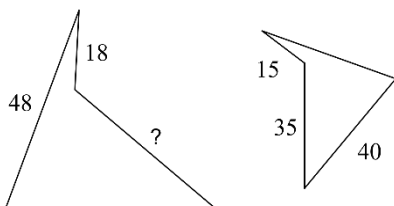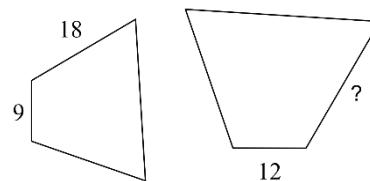
13.

14.
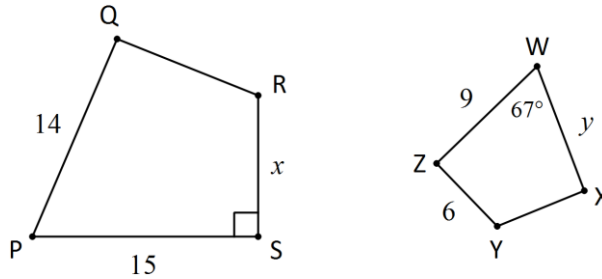

15.

16.

In the diagram below, $PQRS \sim WXYZ$. Answer the following questions.

17. Complete the statement of proportionality: $\dfrac{}{WX} = \dfrac{QR}{} = \dfrac{RS}{ZW} = $

18. What is $m\angle P$?   19. What is $m\angle Z$?   20. What is the scale factor?

21. Find the value of x.   22. Find the value of y.

For each problem, draw and label a picture of the situation, write an equation, then solve the problem. Show your work!

23. A company produces a standard-size U.S. flag that is 3 feet wide and 5 feet long. The company also produces a giant-size flag that is similar to the standard-size flag. If the shorter side of the giant-size flag is 36 feet, what is the length of its longer side?

24. You want to make a scale model of the Empire State Building using the scale 1 inch = 250 feet. The Empire State Building is 1250 feet tall. How tall will your model be?

25. A 5-ft tall person casts a shadow that is 12-ft long. A nearby tree casts a shadow that is 30-ft long. How tall is the tree?