




SM2 10.3 – Similarity Homework

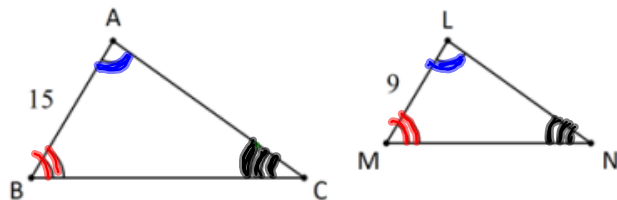
Fill in the blanks.

- Two polygons are similar if corresponding angles are _____ and corresponding side lengths are _____.
- If two polygons are similar, then the ratio of their corresponding sides is called the _____.

Answers are found in the notes.

Use the diagram below to complete the following statements.

- $\triangle CAB \sim \triangle$  what matches C; what matches A, what matches B
- $\angle A \cong \angle$ 
- $\angle N \cong$ _____
- $\angle B \cong$ 
- $\frac{AB}{LM} = \frac{BC}{NL} =$ _____
- The scale factor is _____.



$$\triangle ABC \sim \triangle LMN$$

$$\angle A \cong \angle L$$

$$\angle B \cong \angle M$$

$$\angle C \cong \angle N$$

\cong means have same measure.

#7. Match the letters

L goes with A
and M goes with B
so

Solve each equation.

9. $\frac{5}{8} = \frac{x}{24}$

10. $\frac{3}{5} = \frac{9}{y}$

Cross multiply and solve
for x

$$5(24) = 8x$$

11. $\frac{5}{3} = \frac{10}{z+2}$

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

Cross multiply and solve for x.

$$5(z+2) = 3(10)$$

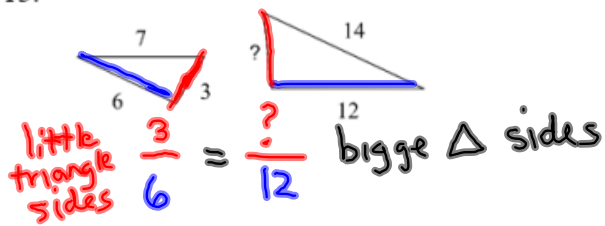
$$5z + 10 = 30$$

subtract 10
on both sides

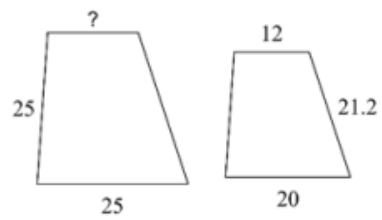
divide by 5
on both sides

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

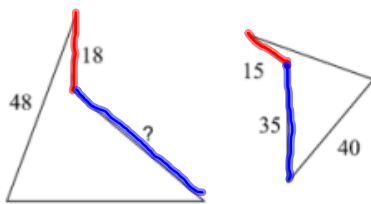
13.



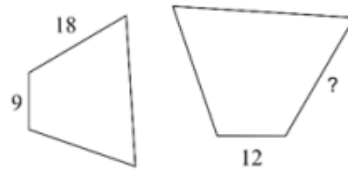
14.



15.



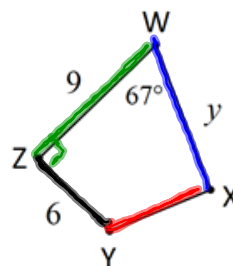
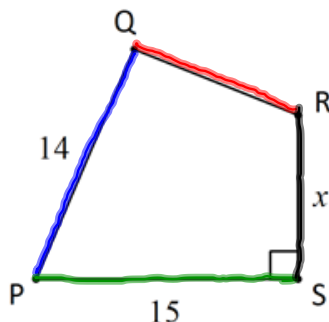
16.



big triangle sides $\frac{18}{?} = \frac{15}{35}$ littler triangle sides

cross multiply and solve for ?

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



17. Complete the statement of proportionality: $\frac{QR}{WX} = \frac{RS}{ZW} = \frac{PS}{YZ} = \frac{PQ}{WZ}$

To help you I have color-coded the corresponding sides.

18. What is $m\angle P$?

19. What is $m\angle Z$?

20. What is the scale factor?

$m\angle Z = m\angle S$
 what is the degree of $\angle S$?

21. Find the value of x .

22. Find the value of y .

$$\frac{RS}{YZ} = \frac{PS}{WZ}$$

$$\frac{x}{6} = \frac{15}{9} \quad \text{Solve for } x.$$

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?

$$\frac{\text{flag width } 3}{\text{flag length } 5} = \frac{36 \text{ giant flag width}}{x}$$

Solve for x

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?

$$\frac{\text{person height } 5}{\text{person shadow } 12} = \frac{x}{\text{tree shadow } 30} \quad \frac{\text{tree height}}{\text{tree shadow}}$$

Solve for x.