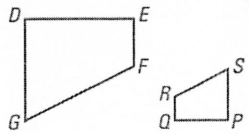
Geometry- Mrs. Tilus
Unit 6- Worksheet #3: Similar Polygons

Name: Answer Key

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

2. In the figure below, $DEFG \sim PQRS$. List all the pairs of congruent angles and write the ratios of the corresponding sides in a statement of proportionality.



$\angle D \cong \angle P, \angle E \cong \angle Q, \angle F \cong \angle R, \angle G \cong \angle S$

$\frac{DE}{PQ} = \frac{EF}{QR} = \frac{FG}{RS} = \frac{GD}{SP}$

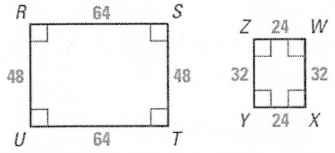
3. Triangles ABC and DEF are similar. Which statement is not correct?

(A) $\frac{BC}{EF} = \frac{AC}{DF}$ (B) $\frac{AB}{DE} = \frac{CA}{FD}$ (C) $\frac{CA}{FD} = \frac{BC}{EF}$ (D) $\frac{AB}{EF} = \frac{BC}{DE}$

DE EF

Determine whether the polygons are similar. If they are, write a similarity statement and find the scale factor.

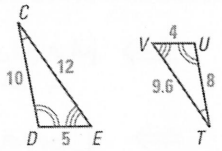
4.



Scale Factor = $\frac{2}{1}$ or $\frac{1}{2}$

$RSTU \sim WXYZ$

5.



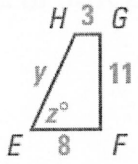
Scale Factor = $\frac{5}{4}$ or $\frac{4}{5}$

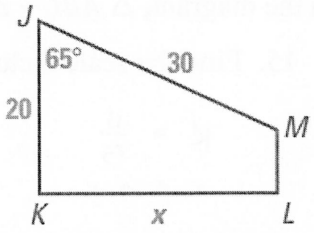
$\triangle CDE \sim \triangle TUV$

In the diagram, $JKLM \sim EFGH$.

6. Find the scale factor of ***JKLM to EFGH.***

$K = \frac{5}{2}$





7. Find the values of x, y, and z.

$x = 27.5$ units, $y = 12$ units, $z = 65°$

8. Find the perimeter of each polygon.

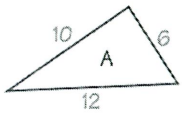
Perimeter of EFGH = 34 units

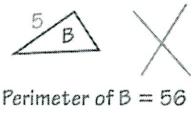
Perimeter of JKLM = 85 units

9. Two similar FOR SALE signs have a scale factor of 5:3. The large sign's perimeter is 60 inches. Find the small sign's perimeter.

P = 36 inches

10. The triangles are similar. Describe and correct the error in finding the perimeter of Triangle B.

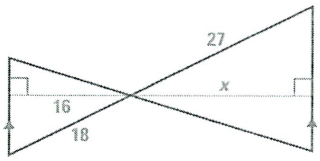




Scale Factor of $\triangle A : \triangle B = \frac{2}{1}$ so...

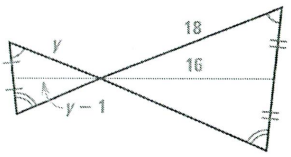
Identify the type of special segment shown in the sets of triangles. Find the value of x.

11.



$X = 24$ units

12.



$y = 9$ units

Triangles NPQ and RST are similar. The side lengths of $\triangle NPQ$ are 6 inches, 8 inches and 10 inches. The length of an altitude is 4.8 inches. The shortest side of $\triangle RST$ is 8 inches long.

13. Find the lengths of the other two sides of $\triangle RST$

$K = \frac{\triangle NPQ}{\triangle RST} = \frac{3}{4}$ $\Rightarrow$ Medium Length = $10\frac{2}{3}$ or $10.\overline{6}$ inches

$\Rightarrow$ Long Length = $13\frac{1}{3}$ or 13.3 inches

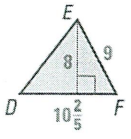
14. Find the length of the corresponding altitude in $\triangle RST$.

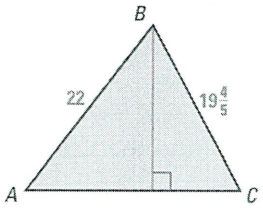
Altitude Length = 6.4 inches

In the diagram, $\triangle ABC \sim \triangle DEF$

15. Find the scale factor of $\triangle ABC$ to $\triangle DEF$

$K = \frac{11}{5}$





16. Find the unknown side lengths in both triangles.

ED = 10 units AC = 22.88 units

17. Find the length of the altitude show in $\triangle ABC$.

Altitude Length = 17.6 units

18. Find and compare the areas of both triangles.