

Geometry

Name: Answer Key

6.1-6.3 Quiz Review

Date: _____ Hour: _____

6.1: I can simplify ratios.

Simplify the ratio. [The following conversions may be helpful: 12 in = 1ft; 4 quarts = 1 gallon; 16 oz = 1 lb]

1. \$12 : \$16
 $3:4$

2. $\frac{32 \text{ in}^2}{8 \text{ in}^2}$ $\frac{4}{1}$

3. $\frac{6 \text{ cm}}{14 \text{ cm}}$ $\frac{3}{7}$

4. $\frac{10 \text{ in}}{2 \text{ ft}}$ $2 \text{ ft} \cdot \frac{12 \text{ in}}{1 \text{ ft}} = 24 \text{ in}$
 $\frac{10 \text{ in}}{24 \text{ in}} = \frac{5}{12}$

5. 3 gallons : 10 quarts
 $3 \text{ gal} \cdot \frac{4 \text{ qts}}{1 \text{ gal}} = 12 \text{ qts}$
 $12 \text{ qts} : 10 \text{ qts}$
 $6:5$

6. 28 oz : 2 lb
 $2 \text{ lb} \cdot \frac{16 \text{ oz}}{1 \text{ lb}} = 32 \text{ oz}$
 $28 \text{ oz} : 32 \text{ oz}$
 $7:8$

6.1: I can solve proportions.

Solve for x.

7. $\frac{4}{5} = \frac{x}{15}$
 $60 = 5x$
 $12 = x$

8. $\frac{z+2}{4} = \frac{27}{12}$
 $12z + 24 = 108$
 $12z = 84$
 $z = 7$

9. $\frac{2}{k-1} = \frac{5}{3k-4}$
 $5k - 5 = 6k - 8$
 $3 = k$

10. $\frac{10+7y}{4} = \frac{5-y}{3}$
 $30 + 21y = 20 - 4y$
 $35y = -10$
 $y = -\frac{2}{7}$

11. $\frac{3}{2p+5} = \frac{1}{9p}$
 $27p = 2p + 5$
 $25p = 5$
 $p = \frac{1}{5}$

12. $\frac{2x+5}{3} = \frac{x-5}{4}$
 $8x + 20 = 3x - 15$
 $5x = -35$
 $x = -7$

6.1: I can calculate the Geometric Mean of two numbers.

The Geometric Mean Formula is: $\sqrt{a \cdot b} = x$

Find the geometric mean of each pair of numbers:

13. 3 and 9
 $\sqrt{27} = 3\sqrt{3} \approx 5.2$

14. 10 and 12
 $\sqrt{10 \cdot 12} = \sqrt{120}$
 $2\sqrt{30} \approx 11$

15. 9 and 13
 $\sqrt{9 \cdot 13} = \sqrt{117}$
 $= 3\sqrt{13} \approx 10.8$

6.2: I can state and use properties of proportions.

Complete each sentence:

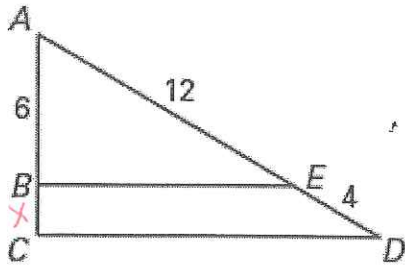
16. If $\frac{6}{x} = \frac{5}{y}$, then $\frac{6}{5} = \frac{x}{y}$.

17. If $\frac{x}{12} = \frac{y}{26}$, then $\frac{x}{y} = \frac{12}{26}$.

18. If $\frac{x}{4} = \frac{7}{y}$, then $\frac{x+4}{4} = \frac{7+y}{y}$.

Use the diagram and the given information to find the unknown length.

19. Given $\frac{AB}{BC} = \frac{AE}{ED}$, find BC .

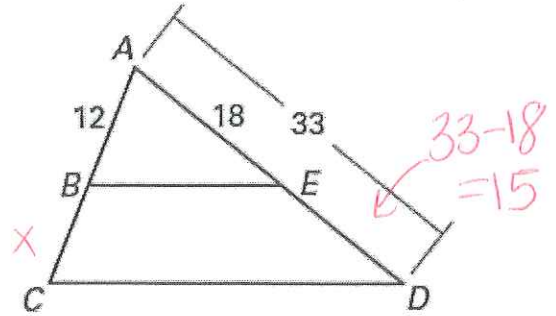


$$\frac{6}{x} = \frac{4}{12}$$

$$24 = 12x$$

$$2 = x$$

20. Given $\frac{AB}{BC} = \frac{AE}{ED}$, find BC .



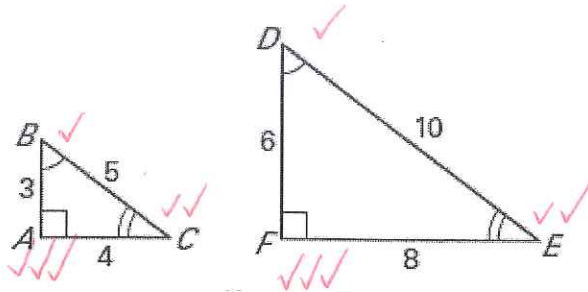
$$\frac{12}{x} = \frac{18}{15}$$

$$x = 10$$

6.3 I can determine whether or not 2 figures are similar & I can write similarity statements and statements of proportionality.

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

21.



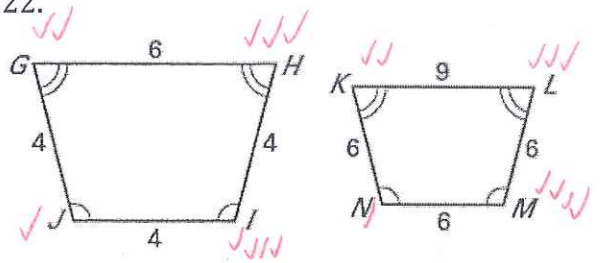
$$\frac{3}{6} = \frac{1}{2}$$

$$\frac{5}{10} = \frac{1}{2}$$

$$\frac{4}{8} = \frac{1}{2}$$

scale factor
 $\triangle ABC \sim \triangle FDE$

22.

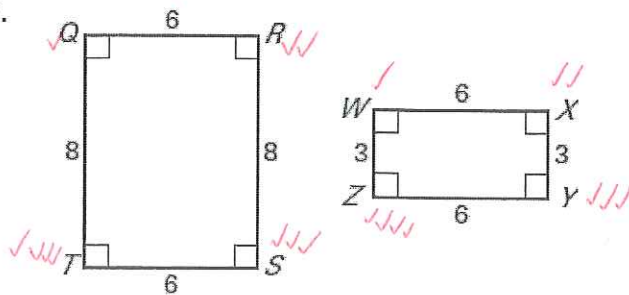


$$\frac{4}{6} = \frac{2}{3}$$

$$\frac{6}{9} = \frac{2}{3}$$

scale factor
 $GHIJ \sim KLMN$

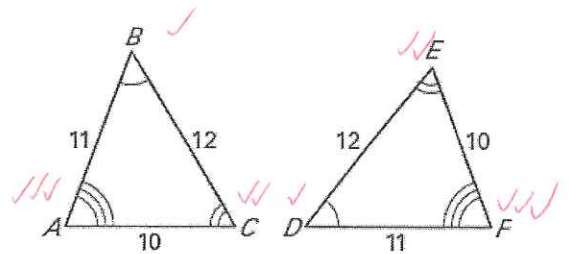
23.



$$\frac{8}{6} = \frac{4}{3}$$

$$\frac{6}{3} = \frac{1}{2} \text{ NO!}$$

24.



$$\frac{11}{11} = 1$$

$$\frac{12}{12} = 1$$

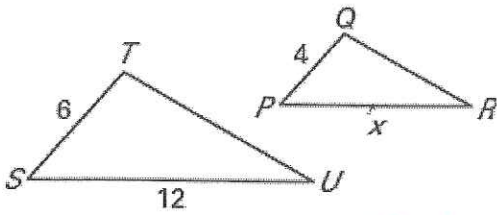
$$\frac{10}{10} = 1$$

scale factor
 $\triangle ABC \sim \triangle FDE$

6.3 I can use similarity to solve for missing sides, perimeters, or special segments.

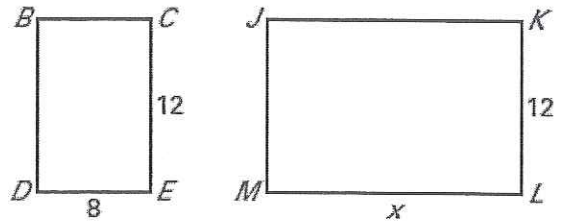
The polygons below are similar as indicated. Find the value of x.

25. $\triangle STU \sim \triangle PQR$



$\frac{4}{6} = \frac{x}{12}$ $48 = 6x$
 $8 = x$

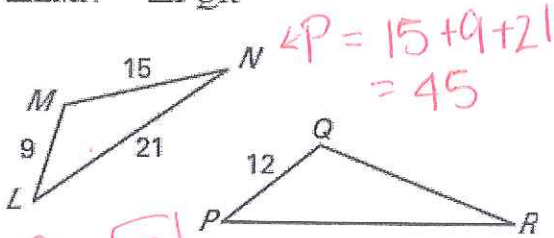
26. $BCDE \sim KLMJ$



$\frac{12}{x} = \frac{8}{12}$ $144 = 8x$
 $18 = x$

Use the similarity statement to find the scale factor of the polygon on the left to the polygon on the right. Then find the perimeter of each polygon

27. $\triangle LMN \sim \triangle PQR$

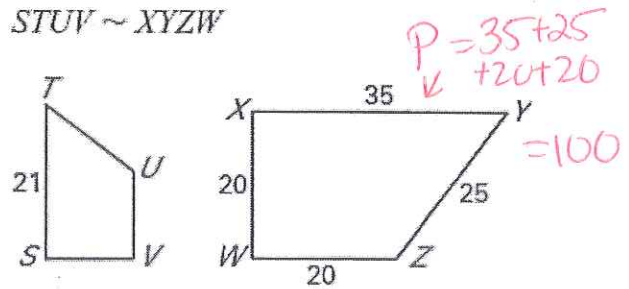


$\frac{9}{12} = \frac{3}{4}$

$\frac{45}{P} = \frac{3}{4}$

$3P = 180$
 $P = 60$

28. $STUV \sim XYZW$



$\frac{21}{35} = \frac{3}{5}$

$\frac{3}{5} = \frac{x}{100}$
 $300 = 5x$
 $60 = x$

In the diagram, $WXYZ \sim MNOP$.

29. Find the scale factor of WXYZ to MNOP

$\frac{8}{10} = \frac{4}{5}$

30. Find the value of x.

$\frac{4}{5} = \frac{12}{x}$ $60 = 4x$
 $15 = x$

31. Find the value of y.

$y = 8$

32. Find the value of z.

$z = 135^\circ$

33. Find the perimeter of each polygon.

$\frac{40}{P} = \frac{4}{5}$ $P = 50$

