Geometry Chapter 7 Review Worksheet

Name: _____ Hour: ___

1. The Washington Monument is about 556 ft tall. A three-dimensional puzzle of the Washington Monument is 24 inches tall. What is the ration of the height of the puzzle to the height of the real monument?

$\frac{24\text{ in}}{556\text{ ft}} = \frac{6\text{ in}}{139\text{ ft}} = \frac{1}{278}$

2. If $\frac{x}{y} = \frac{5}{8}$, which TWO of the following must be true?

(a.) $\frac{y}{x} = \frac{8}{5}$ (b.) $\frac{x}{5} = \frac{y}{8}$

c. $5x = 8y$ d. $\frac{x}{2y} = \frac{5}{4}$

3. Solve for x.

$\frac{x+1}{x} = \frac{7}{5}$

$7x = 5(x+1)$

$7x = 5x + 5$

$2x = 5$

$x = 2.5$

4. Solve for x.

$\frac{6}{11} = \frac{x}{22}$

$11x = 132$

$x = 12$

5. Solve for x.

$\frac{3x}{x+2} = \frac{3x+4}{x+26}$

$3x(x+26) = (x+2)(3x+4)$

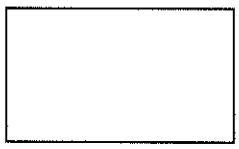
$3x^2 + 78x = 3x^2 + 10x + 8$

$78x = 10x + 8$

$68x = 8$

$x = \frac{8}{68} = \frac{2}{17}$

6. For this rectangle, find the ratio of the longer side to the shorter side.

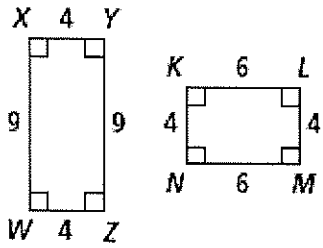


$\frac{3\text{ ft}}{21\text{ in}} = \frac{1\text{ ft}}{7\text{ in}} = \frac{12}{7}$

7. If $\frac{a}{7} = \frac{b}{13}$, then $\frac{a}{b} = ?$

$\frac{7}{13}$

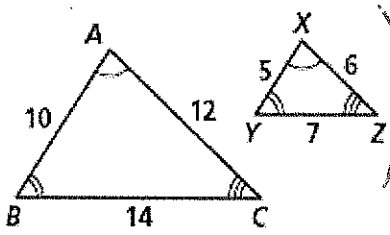
8. Are the polygons similar? If they are, write a similarity statement, and give the similarity ratio. If they are not, explain.



Not similar

$\frac{4}{4} \neq \frac{9}{6}$

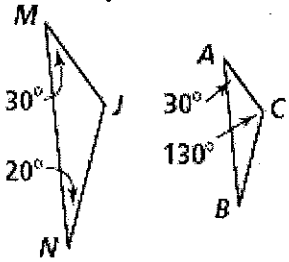
9. Are the polygons similar? If they are, write a similarity statement, and give the similarity ratio. If they are not, explain.



Yes, by AA~

$\Delta ABC \sim \Delta XYZ$

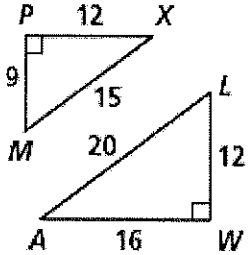
10. Explain why the triangles are similar. Write a similarity statement for each pair.



by AA~

$\Delta MJN \sim \Delta ACB$

11. Explain why the triangles are similar. Write a similarity statement for each pair.

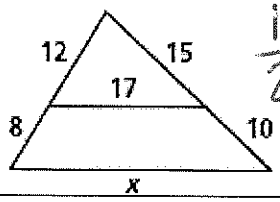


$\frac{12}{9} = \frac{16}{12}$

by SAS~

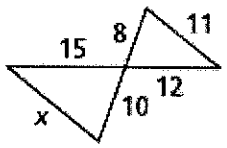
$\Delta MPX \sim \Delta LWA$

12. Find the value of x.



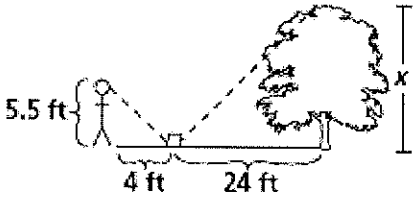
$\frac{12}{20} = \frac{17}{x}$ $12x = 340$ $x = 28\frac{1}{3}$

13. Find the value of x.



$\frac{15}{12} = \frac{x}{11}$ $12x = 165$ $x = 13.75$

14. Kerri places a mirror on the ground 24 feet from the base of an oak tree. She walks backward until she can see the top of the tree in the mirror. At that point, Kerri's eyes are 5.5 feet above the ground, and her feet are 4 feet from the image in the mirror. Find the height of the oak tree.



$\frac{5.5}{x} = \frac{4}{24}$ $4x = 132$ $x = 33$ ft

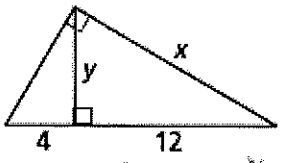
15. Find the geometric mean of 10 and 20.

$\sqrt{10 \cdot 20} = \sqrt{200}$

$= \sqrt{2}\sqrt{100}$

$= 10\sqrt{2}$

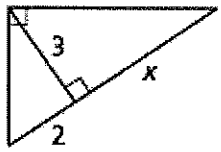
16. Find the values of the variables.



$\frac{y}{12} = \frac{4}{y}$ $y^2 = 48$ $y = \sqrt{48}$ $y = 4\sqrt{3}$

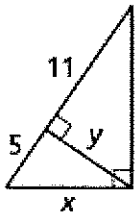
$\frac{x}{16} = \frac{12}{x}$ $x^2 = 192$ $x = 8\sqrt{3}$

17. Find the values of the variables.



$\frac{3}{x} = \frac{2}{3}$ $2x = 9$ $x = 4.5$

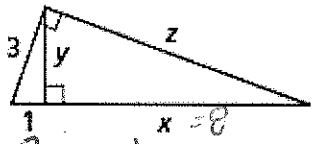
18. Find the values of the variables.



$\frac{y}{5} = \frac{11}{y}$ $y^2 = 55$ $y = \sqrt{55}$

$\frac{x}{16} = \frac{5}{x}$ $x^2 = 80$ $x = 4\sqrt{5}$

19. Find the values of the variables.

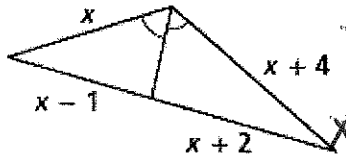


$\frac{3}{x+1} = \frac{1}{3}$ $x + 1 = 9$ $x = 8$

$\frac{y}{1} = \frac{8}{y}$ $y^2 = 8$ $y = 2\sqrt{2}$

$\frac{8}{4} = \frac{8}{z}$ $z^2 = 72$ $z = 6\sqrt{2}$

20. Find the value of x.



$\frac{x}{x-1} = \frac{x+4}{x+2}$

$x(x+2) = (x-1)(x+4)$

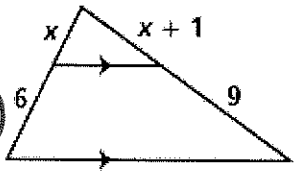
$x^2 + 2x = x^2 + 3x - 4$

$2x = 3x - 4$

$-x = -4$

$x = 4$

21. Find the value of x.



$\frac{x}{6} = \frac{x+1}{9}$

$6(x+1) = 9x$

$6x + 6 = 9x$

$6 = 3x$

$x = 2$