

Name:

Key

Hour:

Date:

Geometry PC Review 8.0-8.4

Solve each proportion.

1. $\frac{16}{3} = \frac{20}{t+1}$

$16(t+1) = 60$
 $16t + 16 = 60$
 $16t = 44$

$t = \frac{11}{4}$ or 2.75

2. $\frac{s-2}{4} = \frac{9}{s-2}$

$\sqrt{(s-2)^2} = \sqrt{36}$
 $s-2 = \pm 6$
 $+2 \quad +2$

$s = 2+6$ and $2-6$
 $s = 8, -4$

3. $\frac{2}{3y} = \frac{y}{24}$

$48 = 3y^2$
 $\frac{48}{3} = \frac{3y^2}{3}$
 $16 = y^2$

$y = \pm 4$

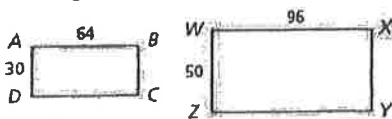
4. An architect's model for a building is 1.4 m long and 0.8 m wide. The actual building is 240 m wide. What is the length of the building?

$\frac{1.4}{0.8} \neq \frac{x}{240}$

$0.8x = 336$
 $x = 420 \text{ m}$

Determine if the two polygons are similar. If so, write a similarity ratio and a similarity statement.

5. Rectangles ABCD and WXYZ

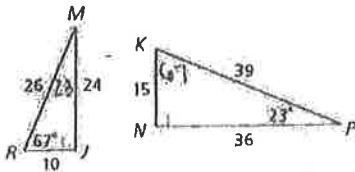


$\frac{30}{50} = \frac{3}{5}$

$\frac{64}{96} = \frac{2}{3}$

not similar

6. $\triangle JMR$ and $\triangle KNP$



yes by AA

$\triangle JMR \sim \triangle KNP$

7. A geologist wants to measure the length XY of a rock formation. To do so, she locates points U, V, X, Y, and Z as shown. What is XY? How did you find it?

$\frac{35}{14} = \frac{5}{2}$

$\frac{25}{10} = \frac{5}{2}$

$\frac{25}{10} = \frac{x}{16}$

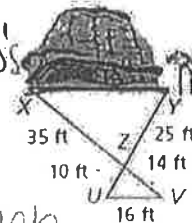
$10x = 400$

$x = 40 \text{ ft}$

Similar Δ 's

prop.

each other



8. A building casts a 103 foot and 5 inch shadow at the same time a nearby flagpole casts a shadow that is 34 feet and 6 inches long. The flagpole is 32 feet tall. How tall is the building? (Reminder: 12 inches = 1 foot):

$$\begin{aligned}
 103\text{ ft } 5\text{ in} &= 124\frac{1}{2}\text{ ft} \\
 34\text{ ft } 6\text{ in} &= 41\frac{1}{2}\text{ ft} \\
 32\text{ ft} &= 384\text{ in}
 \end{aligned}$$

$$\frac{103\frac{5}{12}\text{ ft}}{34\frac{1}{2}\text{ ft}} = \frac{x}{32}$$

$$34.5x = 3309\frac{1}{3}$$

$$\boxed{x = 95.92\text{ ft}}$$

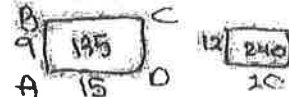
9. It is given that rectangle ABCD ~ EFGH. The area of rectangle ABCD is 135 in² and the area of rectangle EFGH is 240 in². If the width of rectangle ABCD is 9 in., what is the length and width of rectangle EFGH?

$$\frac{135}{240} = \frac{9^2}{x^2}$$

$$135x^2 = 19,440$$

$$x^2 = 144$$

$$x = 12$$



$$\boxed{w = 12\text{ in}}$$

$$\boxed{l = 20\text{ in}}$$

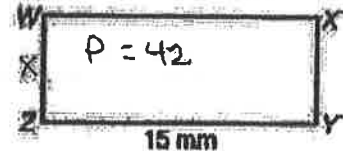
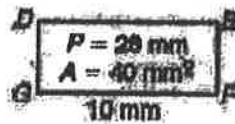
10. Given that DEFG ~ WXYZ, find the following:

- a. perimeter of WXYZ

$$\frac{10}{15} = \frac{28}{x}$$

$$10x = 420$$

$$\boxed{x = 42\text{ mm}}$$



- b. area of WXYZ

$$\frac{10^2}{15^2} = \frac{40}{x}$$

$$\frac{100}{225} = \frac{40}{x}$$

$$100x = 9000$$

$$\boxed{x = 90\text{ mm}^2}$$

11. A free-fall ride at an amusement park casts a shadow $43\frac{2}{3}$ ft long. At the same time, a 6-foot-tall person standing in line casts a shadow 2 feet long. What is the height of the ride?

$$\frac{x}{6} = \frac{43\frac{2}{3}}{2}$$

$$2x = 262$$

$$\boxed{x = 131\text{ ft}}$$

12. Two similar figures have areas of 98 m² and 72 m². Find the ratio of their perimeters.

$$\frac{\sqrt{98}}{\sqrt{72}} = \frac{7\sqrt{2}}{6\sqrt{2}} = \frac{7}{6}$$

Simplifying Radicals Review

Simplify.

$$1) \frac{10\sqrt{14}}{\sqrt{42}} \cdot \frac{\sqrt{42}}{\sqrt{42}} = \frac{10\sqrt{588}}{42}$$

$$= \frac{10 \cdot 14\sqrt{3}}{42}$$

$$= \boxed{\frac{10\sqrt{3}}{3}}$$

$$2) \frac{9\sqrt{2}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \boxed{\frac{9\sqrt{10}}{5}}$$

$$3) \frac{\sqrt{48}}{10\sqrt{66}} \cdot \frac{\sqrt{66}}{\sqrt{66}} = \frac{\sqrt{368}}{660}$$

$$= \frac{12\sqrt{22}}{660} = \boxed{\frac{\sqrt{22}}{55}}$$

$$4) \frac{5\sqrt{3}}{\sqrt{8}} = \frac{5\sqrt{3}}{2\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \boxed{\frac{5\sqrt{6}}{4}}$$

$$5) -\frac{10}{4\sqrt{10}} \cdot \frac{\sqrt{10}}{\sqrt{10}} = -\frac{10\sqrt{10}}{40}$$

$$= \boxed{-\frac{\sqrt{10}}{4}}$$

$$6) \frac{11\sqrt{11}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \boxed{\frac{11\sqrt{55}}{5}}$$

$$7) 3\sqrt{6} - 2\sqrt{18} - 3\sqrt{24}$$

$$\begin{matrix} \sqrt{9} & \sqrt{2} & \sqrt{4} & \sqrt{6} \\ \sqrt{9} & \sqrt{2} & \sqrt{4} & \sqrt{6} \end{matrix}$$

$$3\sqrt{6} - 6\sqrt{2} - 6\sqrt{6} = \boxed{-3\sqrt{6} - 6\sqrt{2}}$$

$$8) 3\sqrt{18} - 3\sqrt{3} - \sqrt{8}$$

$$\begin{matrix} \sqrt{9} & \sqrt{2} & \sqrt{4} & \sqrt{2} \\ \sqrt{9} & \sqrt{2} & \sqrt{4} & \sqrt{2} \end{matrix}$$

$$9\sqrt{2} - 3\sqrt{3} - 2\sqrt{2} = \boxed{7\sqrt{2} - 3\sqrt{3}}$$

$$9) 2\sqrt{2} - \sqrt{2} - 2\sqrt{3}$$

$$\boxed{\sqrt{2} - 2\sqrt{3}}$$

$$10) 2\sqrt{24} + 3\sqrt{6} - 2\sqrt{6}$$

$$\begin{matrix} \sqrt{4} & \sqrt{6} \\ \sqrt{4} & \sqrt{6} \end{matrix}$$

$$4\sqrt{6} + 3\sqrt{6} - 2\sqrt{6} = \boxed{5\sqrt{6}}$$

$$11) -4\sqrt{320n^3}$$

$$4 - \begin{matrix} \sqrt{16} & \sqrt{20} & \sqrt{n^2} & \sqrt{n} \\ \sqrt{16} & \sqrt{5} & n & \end{matrix} = -4 \cdot 4 \cdot 2 \cdot n \sqrt{5n}$$

$$2 - \begin{matrix} \sqrt{4} & \sqrt{5} & n \\ \sqrt{4} & \sqrt{5} & n \end{matrix} = \boxed{-32n\sqrt{5n}}$$

$$12) -4\sqrt{384n^2}$$

$$8 - \begin{matrix} \sqrt{64} & \sqrt{6} & \sqrt{n^2} \\ \sqrt{64} & \sqrt{6} & \sqrt{n^2} \end{matrix} = -4 \cdot 8 \cdot n \sqrt{6}$$

$$\boxed{-32n\sqrt{6}}$$

$$13) -3\sqrt{200a^2}$$

$$10 - \begin{matrix} \sqrt{100} & \sqrt{2} & \sqrt{a^2} \\ \sqrt{100} & \sqrt{2} & \sqrt{a^2} \end{matrix} = -3 \cdot 10 \cdot a \sqrt{2}$$

$$\boxed{-30a\sqrt{2}}$$

$$14) 3\sqrt{256x^3}$$

$$= 3 \cdot 16x \sqrt{x}$$

$$\boxed{48x\sqrt{x}}$$

