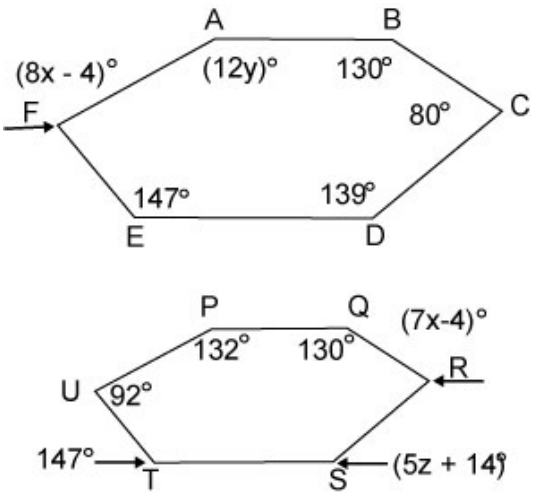
**Geometry**
**Unit: Similarity**
**Section: Similar Polygons**

**Review Worksheet Key**

1) Polygon ABCDEF is similar to polygon PQRSTU. Find the values of x, y, and z.




$m\angle F = m\angle U$
$8x - 4 = 92$
$8x = 96$
$x = 12$

$m\angle A = m\angle P$
$12y = 132$
$y = 11$

$m\angle D = m\angle S$
$139 = 5z + 14$
$125 = 5z$
$25 = z$

2) Quadrilateral GHIJ is similar to quadrilateral KLMN. Find the values of a, b, and c.

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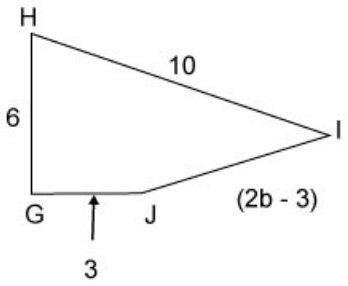


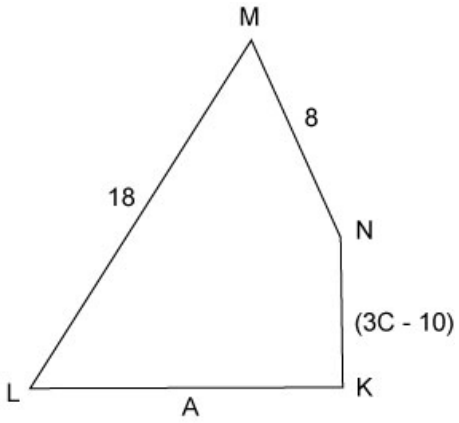


$\frac{10}{18}=\frac{6}{a}$

$10a=18(6)$

$10a=108$

$a=10.8$

$\frac{10}{18}=\frac{2b-3}{8}$

$10(8)=18(2b-3)$

$80=36b-54$

$134=36b$

$3.72\approx b$

$\frac{10}{18}=\frac{3}{3c-10}$

$10(3c-10)=18(3)$

$30c-100=54$

$30c=154$

$c\approx 5.13$

3) The ratio of the side lengths of polygon A to polygon B is 5 to 3. If the perimeter of polygon A is 86 inches, what is the perimeter of polygon B (also in inches)?

$\frac{A}{B}=\frac{5}{3}=\frac{86}{x}$

$5x=3(86)$

$5x=258$

$x=51.6$

The perimeter of polygon B is 51.6 inches.

4) The ratio of the sides of polygon X to polygon Y is 2 to 7. If the area of polygon Y is 1000 square feet, what is the area of polygon X (also in square feet)?

$\frac{X}{Y}=\frac{2}{7}$

Area : $\frac{X^2}{Y^2}=\frac{2^2}{7^2}=\frac{4}{49}$

$\frac{4}{49}=\frac{x}{1000}$

$4(1000)=49x$

$4000=49x$

$81.63\approx x$

The area of polygon X is approximately equal to 81.63 square feet.

5) You are making a map of your school for a project for your Geography class. The hallways in your school are 12 feet wide. On your map, you make them 1 inch wide. The gym is 200 feet wide and 300 feet long. What should the dimensions be to keep the ratio consistent with the hallway?

$$\frac{\text{actual}}{\text{map}} = \frac{12\text{ ft}}{1\text{ in}}$$

$$\frac{12}{1} = \frac{200}{W}$$

$$12W = 200$$

$$W \approx 16.67$$

$$\frac{12}{1} = \frac{300}{L}$$

$$12L = 300$$

$$L = 25$$

The map of the gym will be approximately 16.67 inches wide and 25 inches long.