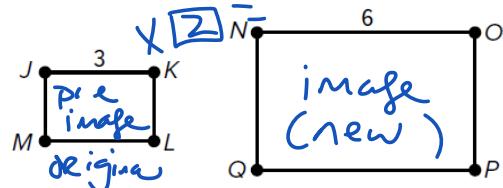


Module 8 Similarity

Sunday, April 2, 2023 5:41 PM

1. Use the figure to complete the statement.



The transformation from rectangle JKLM to rectangle NOPQ is a(n)

- [A. enlargement B. reduction]

with a scale factor of

- [A. 0.5 B. 2 C. 3].

- 2.) If the point $P(4, 6)$ is dilated with a center of dilation at the origin and $k = \frac{3}{2}$ then where is P' ?

$$\text{Pre-image } 4 \times 1.5 = 6$$

$$\text{enlargement } 1.5$$

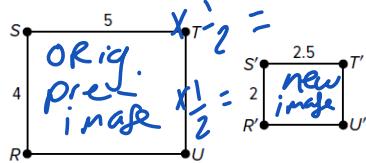
(6, 9)

New (image)

- 3.) If after a dilation T' is at $(-4, 28)$ and T was at $(-1, 7)$ then what was the value of k ?

$$\text{enlargement } \begin{aligned} \text{New } 28 &= 4 \times 7 & \text{pre-image } \\ (-4) &= 4 \times (-1) & \text{origin} \end{aligned}$$

- 4.) A dilation maps rectangle RSTU onto rectangle $R'S'T'U'$.



Reduction (fraction)

$$\frac{2.5}{5} = \frac{1}{2}$$

$$\frac{2.5}{5} = \frac{1}{2}$$

What is the similarity ratio of the dilation?

- A. $\frac{1}{2}$
B. 2
C. $\frac{5}{4}$
D. $\frac{4}{5}$

$\frac{\text{new}}{\text{original}}$

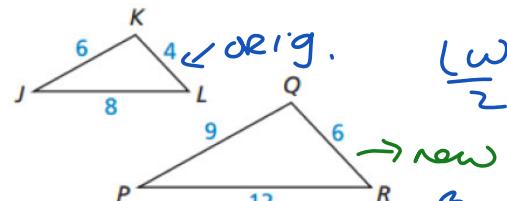
Refer to the figure at the right.

Write your answer in simplified fraction form.

$$\frac{3}{2} = 1.5$$

5. Find the scale factor of $\triangle JKL$ to $\triangle PQR$.

$\frac{9}{6}$ NEW
 $\frac{6}{9}$ ORIGINAL



$\frac{\omega}{2}$

6. Find the ratio of the areas of $\triangle JKL$ to $\triangle PQR$.



area - 2D
perimeter
1 dimes. in

$$P: 18 \text{ } JKL$$
$$P: 27 \text{ } PQR$$

$$\left(\frac{3}{2}\right)^2 = \frac{9}{4}$$
$$(1.5)^2 = 2.25$$

VOLUME
3D

$$\left(\frac{3}{2}\right)^3 = \frac{27}{8}$$
$$(1.5)^3 = 3.375$$

Refer to the diagram at the right.

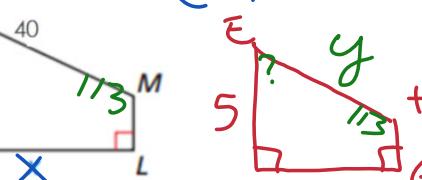
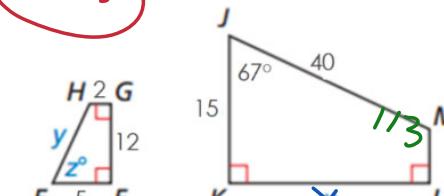
$$\frac{S_x}{5} = 180 \quad x = 36$$

$$8. \text{ Find the value of } z.$$

$$\angle E = \angle J \quad 67^\circ$$
$$\angle M = \angle H \quad 113^\circ$$

$$x = 15$$

$$y = 12$$

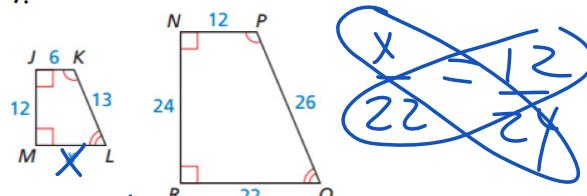


$$\frac{15y}{15} = \frac{200}{15}$$
$$y = 13\frac{1}{3}$$

$$\begin{array}{r} 360 \\ - 247 \\ \hline 113 \end{array}$$

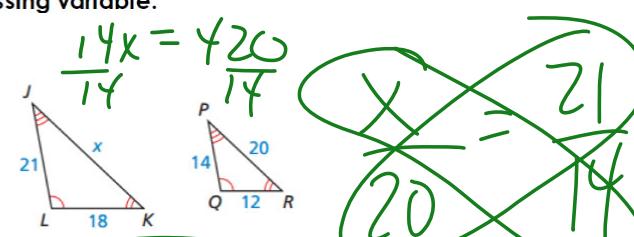
Each pair of polygons are similar. Find the value of the missing variable.

9.



$$\frac{24x}{24} = \frac{264}{24}$$
$$x = 11$$

10.



$$\frac{14x}{14} = \frac{420}{14}$$

$$x = 30$$

- 11.) SHADOWS Jeremy stands so that his shadow and the shadow cast by a flag pole end at the same point. If Jeremy is exactly 68 inches tall, what is the height of the flagpole in feet?

$$96x = 195.04$$

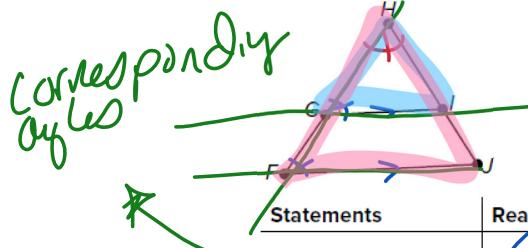
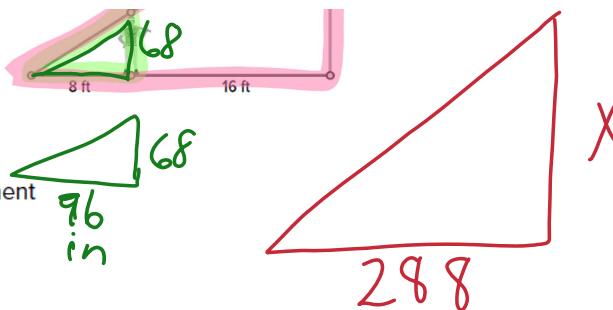


$$\begin{array}{rcl} \cancel{96} & & = x - 604 \text{ in} \\ \cancel{x} & - \cancel{96} & = \cancel{288} \\ \cancel{68} & & \end{array}$$

12.)

Match the reasons to each statement to complete the proof.

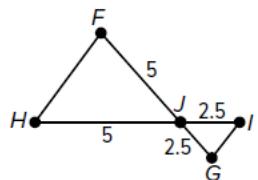
Given: $\angle HGI \cong \angle HFJ$
Prove: $\triangle FHJ \sim \triangle GHI$



Statements	Reasons
1. $\angle HGI \cong \angle HFJ$	1. Given
2. $\angle GHI \cong \angle FJH$	2. Reflexive
3. $\triangle FHJ \sim \triangle GHI$	3. AA

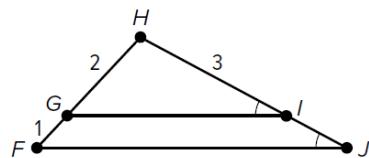
- A. Third Angles Theorem
- B. Transitive Property of Congruence
- C. Given
- D. AA Similarity Postulate
- E. Reflexive Property of Congruence

13.) Which reason proves that $\triangle FHJ \sim \triangle GIJ$?



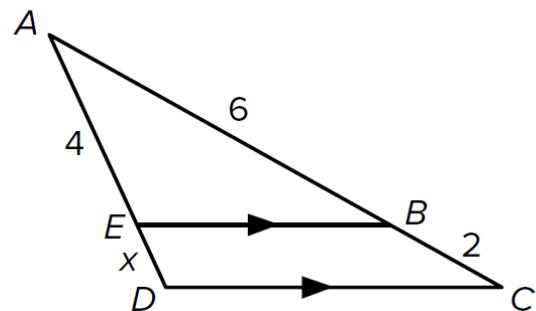
- A. AA Similarity Postulate
- B. SAS Similarity Theorem
- C. SSS Similarity Theorem

14.) What is the length of \overline{HJ} ?



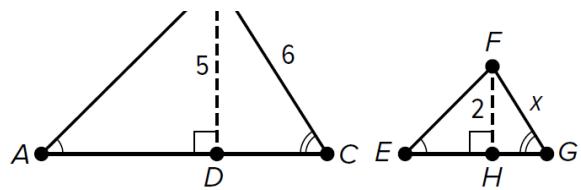
$$HJ = \underline{\hspace{2cm}}$$

15. Find the value of x .



16.) Which equation can be used to find the value of x ?





- A. $\frac{x}{6} = \frac{2}{5}$
- B. $\frac{x}{6} = \frac{5}{2}$
- C. $\frac{x}{5} = \frac{6}{2}$
- D. $\frac{x}{5} = \frac{2}{6}$