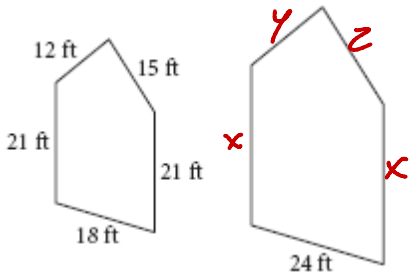
Geometry
Chapter 7 – Similarity
Test Review

Name: Key

Date: _____ **Per:** _____

1. Find the perimeter of the larger pentagon if the two pentagons are similar.



$JF = \frac{18}{24} = \frac{3}{4}$

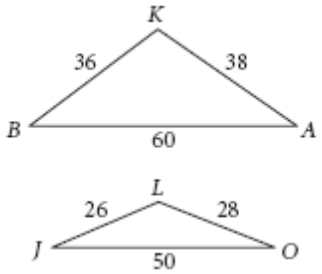
$\frac{3}{4} = \frac{21}{x}$ $\quad \frac{3}{4} = \frac{12}{y}$ $\quad \frac{3}{4} = \frac{15}{z}$

$3x = 84$ $\quad 3y = 48$ $\quad 3z = 60$

$x = 28$ $\quad y = 16$ $\quad z = 20$

$P = 24 + 28 + 28 + 16 + 20 = 116$ ft

2. Is $\triangle BAK \sim \triangle JOL$? Explain why or why not.

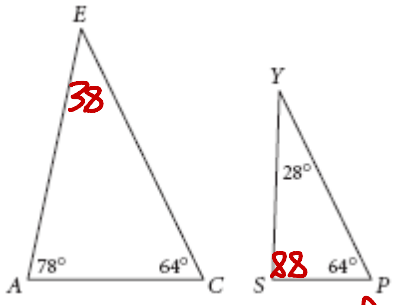


$\frac{36}{26} = \frac{38}{28} = \frac{60}{50}$

$\frac{18}{13} = \frac{19}{14} = \frac{6}{5}$

No, sides are not proportional

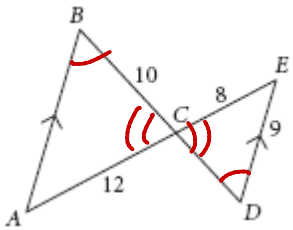
3. Is $\triangle ACE \sim \triangle SPY$? Explain why or why not.



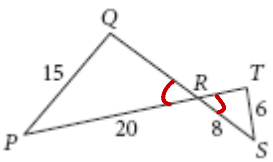
No, only one set of angles are congruent

For Problems 4–6, complete each triangle similarity statement, and tell which conjecture shows the similarity or write "not enough information." All measures are in centimeters.

4. $\triangle ABC \sim$ $\triangle DEC$ by $AA\sim$

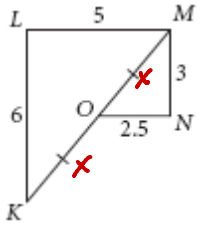


5. $\triangle PQR \sim$ _____ by _____



Not enough info. Even though the two sides are proportional the included angles (∠P and ∠T) are not necessarily congruent so SAS~ cannot be used

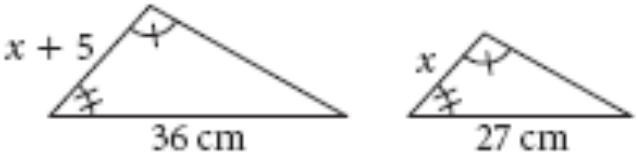
6. $\triangle KLM \sim$ $\triangle MNO$ by SSS~



$\frac{6}{3} = \frac{5}{2.5} = \frac{2x}{x}$

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

7. $x =$ 15



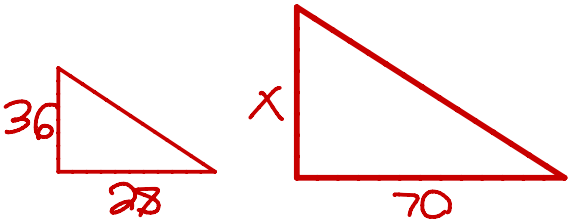
$\frac{x+5}{36} = \frac{x}{27}$

$27(x+5) = 36x$

$27x + 135 = 36x$

$135 = 9x \rightarrow x = 15$

8. If a 36 foot tree casts a 28 foot shadow at the same time a nearby building casts a 70-foot shadow, how tall is the building?



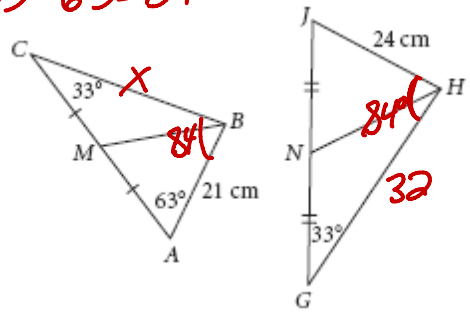
$\frac{36}{x} = \frac{28}{70}$

$28x = 2520$

$x =$ 90 feet

For Problems 9 and 10, use the figure to complete each statement. $m\angle JHG = 84°$.

$180 - 33 - 63 = 84$



$\frac{21}{24} = \frac{x}{32}$

$672 = 24x$

$28 = x$

9. $\triangle ABC \sim$ $\triangle JHC$ by the AA Similarity Conjecture

10. If $HG = 32$ cm, then $BC =$ 28 cm.

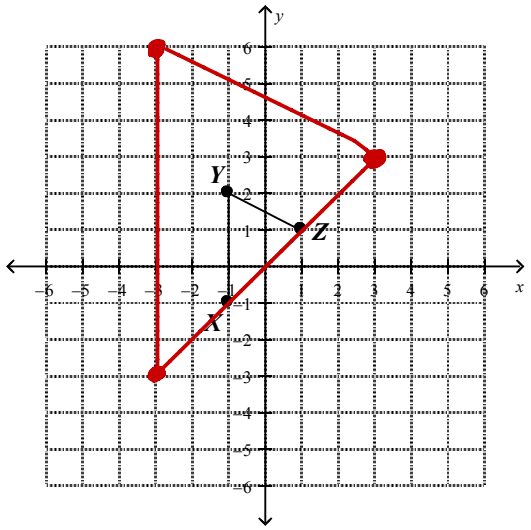
11. Triangle *XYZ* is graphed below. Determine the coordinates of the triangle X'Y'Z' after a dilation using a scale factor of 3. Draw and label triangle X'Y'Z'

$X\ (-1,-1) \rightarrow X'\ (-3,-3)$

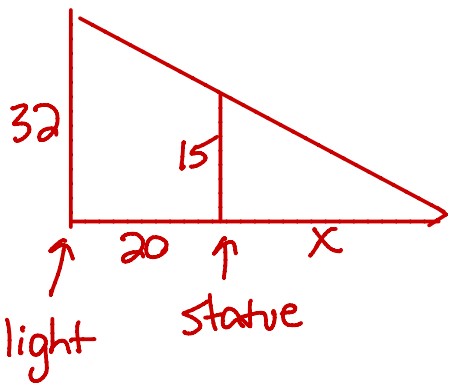
$Y\ (-1,2) \rightarrow Y'\ (-3,6)$

$Z\ (1,1) \rightarrow Z'\ (3,3)$

$(x, y) \rightarrow (3x, 3y)$



12. A statue that is 15 feet tall stands 20 feet from a light. If the light is 32 feet tall, how long is the shadow cast by the statue? (Draw a picture to model the situation, set up a proportion, and solve)



$\frac{15}{32} = \frac{x}{x+20}$

$15(x+20) = 32x$

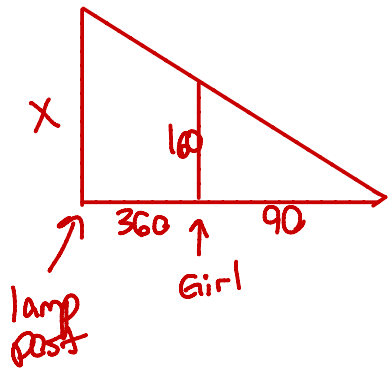
$15x + 300 = 32x$

$300 = 17x$

$17.6 = x$

17.6 ft

13. A girl 160 cm tall, stands 360 cm from a lamp post at night. Her shadow from the light is 90 cm long. How high is the lamp post? (Draw a picture to model the situation, set up a proportion, and solve)

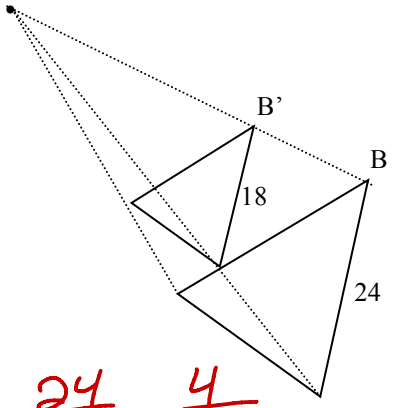


$\frac{160}{x} = \frac{90}{450}$

$90x = 72000$

$x = 800\text{ cm}$

14. Determine whether the picture shows a reduction or enlargement. Then find the scale factor of the image to the pre-image.



Reduction / Enlargement? Reduction

Scale Factor: $\frac{4}{3}$

$SF = \frac{24}{18} = \frac{4}{3}$

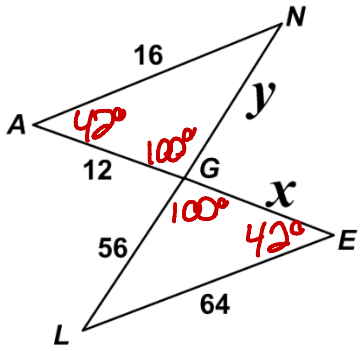
15. In the diagrams, $\Delta ANG \sim \Delta ELG$. Find the values of x and y. Then find the scale factor of ΔANG to ΔELG.

$SF = \frac{16}{64} = \frac{1}{4}$

$\frac{1}{4} = \frac{y}{56}$ $\quad$ $\frac{1}{4} = \frac{12}{x}$

$4y = 56$ $\quad$ $x = 48$

$y = 14$



$x =$ 48 $\quad$ $y =$ 14 $\quad$ Scale Factor = $\frac{1}{4}$

If $m\angle A = 42°$ and $m\angle AGN = 100°$, what is $m\angle L$?

$180 - 100 - 42$

$38°$

$m\angle L =$ 38°