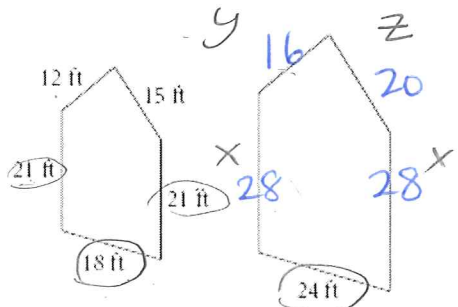**Geometry**
Chapter 7 – Similarity
Test Review

Name: __Key__

Date: _____ Per: _____

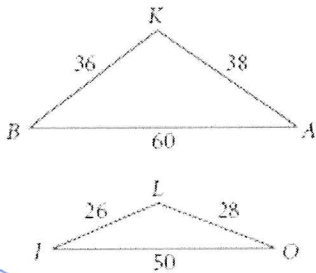✳ 1. Find the perimeter of the larger pentagon if the two pentagons are similar.

$\frac{24}{18} = \frac{x}{21}$ $\frac{24}{18} = \frac{y}{12}$

$18x = 504$ $18y = 288$

$x = 28$ $y = 16$

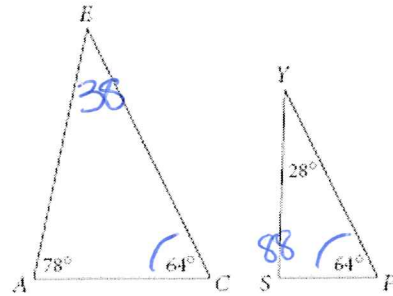$\frac{24}{18} = \frac{z}{15}$ → $18z = 360$
$z = 20$

$P = 16 + 20 + 28 + 24 + 28$
$\boxed{P = 116 \text{ ft}}$ Is there Another way?

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

$\frac{26}{36} = \boxed{\frac{13}{18}}$ ← **NOT SIMILAR**

$\frac{50}{60} = \boxed{\frac{5}{6}}$ ← B/c Ratios aren't proportional
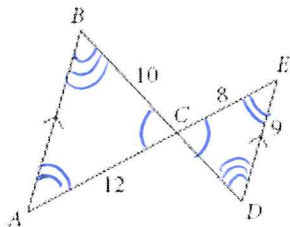
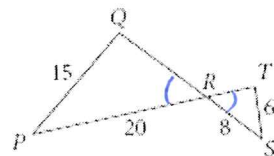3. Is $\triangle ACE \sim \triangle SPY$? Explain why or why not.

NO there are not 2 pairs of ≅ corresponding angles

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.

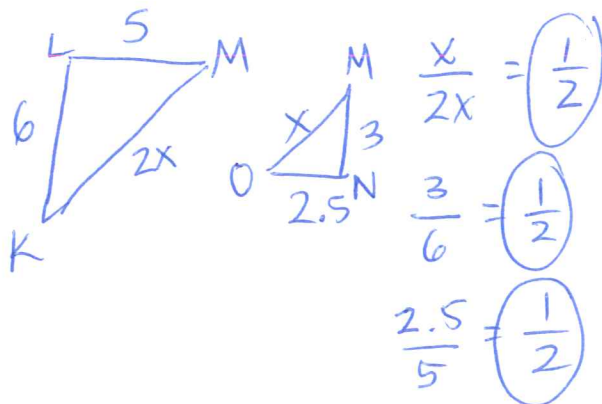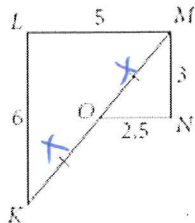4. $\triangle ABC \sim \underline{\triangle EDC}$ by $\underline{AA\sim}$

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

not enough information

6. $\triangle KLM \sim \underline{AMNO}$ by $\underline{SSS\sim}$

$\dfrac{x}{2x} = \boxed{\dfrac{1}{2}}$

$\dfrac{3}{6} = \boxed{\dfrac{1}{2}}$

$\dfrac{2.5}{5} \neq \boxed{\dfrac{1}{2}}$

7. $x = \underline{15}$

$x + 5$ | 36 cm x | 27 cm
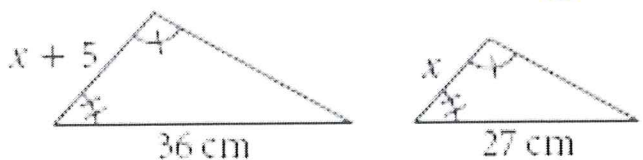
$\dfrac{x}{x+5} = \dfrac{27}{36}$
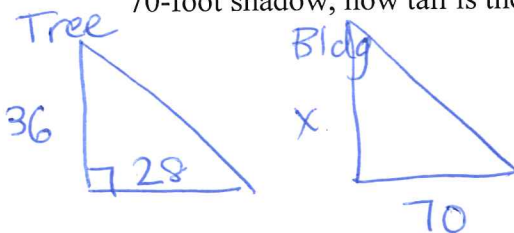
$36x = 27(x+5)$

$36x = 27x + 135$
$-27x \quad -27x$

$9x = 135$

$x = 15$

Similar by AA$\sim$

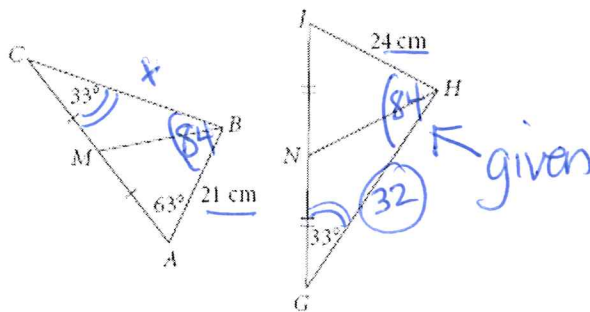**8.** If a 36 foot tree casts a 28 foot shadow at the same time a nearby building casts a 70-foot shadow, how tall is the building?

Tree — 36, 28

Bldg — x, 70

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

$28x = 2520$

$\dfrac{28x}{28} = \dfrac{2520}{28}$

$\boxed{x = 90\text{ ft}}$

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

$\dfrac{32}{x} = \dfrac{24}{21}$ ← given

$24x = 672$

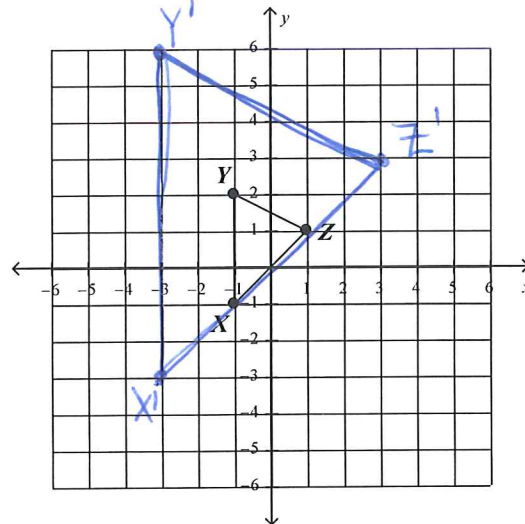$\dfrac{24x}{24} = \dfrac{672}{24}$

$x = 28$

9. $\triangle ABC \sim \underline{JHG}$ by the $\underline{AA\sim}$ Similarity Conjecture

10. If $HG = 32$ cm, then $BC = \underline{28\text{ cm}}$.

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'

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

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

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

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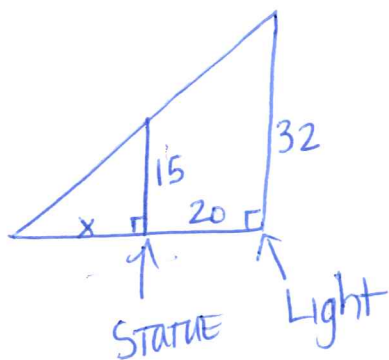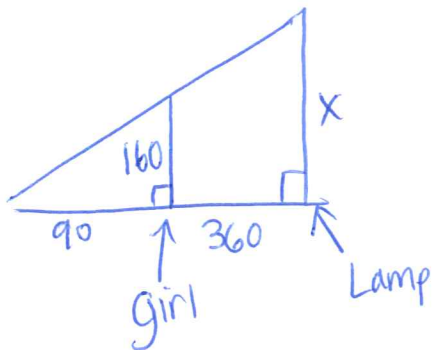
$$\frac{32}{15} = \frac{x+20}{x}$$

$32x = 15(x+20)$

$32x = 15x + 300$

$-15x \quad -15x$

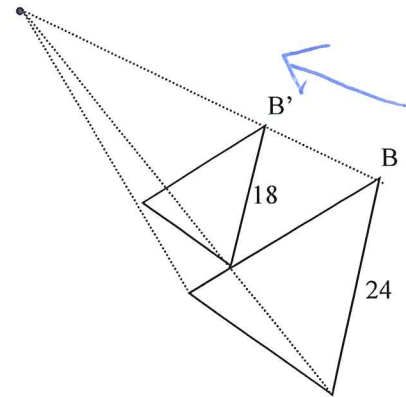$\dfrac{17x}{17} = \dfrac{300}{17}$

$x = 17.6\ ft$

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)

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

$90x = 72000$

$x = 800\ cm$

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: $\dfrac{3}{4}$

$\dfrac{B'}{B}$ $\dfrac{18}{24} = \dfrac{3}{4}$

15. In the diagrams, $\triangle ANG \sim \triangle ELG$. Find the values of x and y. Then find the scale factor of $\triangle ANG$ to $\triangle ELG$.
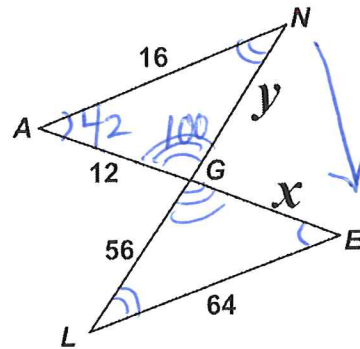
$\dfrac{9}{56} = \dfrac{16}{64}$

$\dfrac{12}{x} = \dfrac{16}{64}$

$\dfrac{64y = 896}{64} \quad \dfrac{}{64}$

$y = 14$

$\dfrac{16x = 768}{16} \quad \dfrac{}{16}$

$x = 48$

$x = \underline{48}$ $y = \underline{14}$ Scale Factor $= \underline{4}$

$\dfrac{64}{16} = \dfrac{4}{1}$

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

$m\angle L = \underline{38°}$

$m\angle N$
$180 - 100 - 42 = 38$

$m\angle L$
38