

NAME: _____

P.I. G.G.45: Investigate, justify, and apply theorems about similar triangles

1. Complete the following when $\triangle IJK \sim \triangle LMN$.

a) $m\angle K = m\angle$ _____

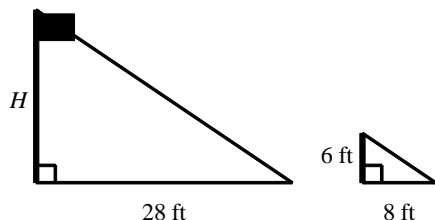
b) $\frac{KI}{JI} = \frac{NL}{?}$

2. In $\triangle QRS$, $QR=7$, $RS=13$, and $m\angle R=46$. In $\triangle UVT$, $VT=14$, $TU=28$, and $m\angle T=46$. State whether the triangles are similar, and if so, write a similarity statement.

3. Find the scale factor that maps $\triangle ABC$ onto $\triangle A'B'C'$ if $A(-2, 0)$, $B(0, 4)$, $C(6, 0)$, $A'(-3, 0)$, $B'(0, 6)$, $C'(9, 0)$. How are the figures related? Explain.

4. $\triangle ABC$ with vertices $A(-2, 1)$, $B(-2, 5)$, and $C(2, 4)$ is similar to $\triangle MNO$ with vertices $M(3, -1)$ and $N(3, -9)$. Find four possibilities for the coordinates of vertex O .

5. A lamppost is 6 feet high and casts an 8-foot shadow. At the same time of day, a flagpole directly behind the lamppost casts a 28-foot shadow.



Which proportion can be used to find the height, H , of the flagpole?

[A] $\frac{H}{28} = \frac{6}{8}$

[B] $\frac{H}{8} = \frac{6}{28}$

[C] $\frac{8}{28} = \frac{H}{6}$

[D] $\frac{H}{28} = \frac{8}{6}$

[1] a) N b) ML _____

[2] not similar _____

[3] $\frac{3}{2}$; they are similar because each side of $\triangle ABC$ is proportional to the corresponding side of $\triangle A'B'C'$.

[4] $(11, -7)$, $(11, -3)$, $(-5, -3)$, or $(-5, -7)$ _____

[5] A _____

[6] A _____

[7] B _____