

Name: _____

Date: _____

Some Final Geometry Regents Review

1. What are the coordinates of the point on the directed line segment from $K(-5, -4)$ to $L(5, 1)$ that partitions the segment into a ratio of 3 to 2?

- x_2, y_2
 (1) $(-3, -3)$
 (2) $(-1, -2)$
 (3) $(0, -\frac{3}{2})$
 (4) $(1, -1)$

$k = \frac{3}{5}$

$x_1 + k(x_2 - x_1)$

$-5 + \frac{3}{5}(5 + 5)$
 $-5 + \frac{3}{5}(10) = -5 + 6$
 1

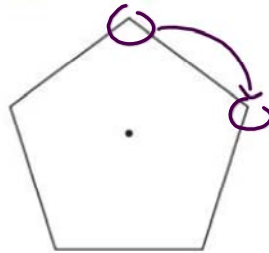
$y_1 + k(y_2 - y_1)$

$-4 + \frac{3}{5}(1 + 4)$
 $-4 + \frac{3}{5}(5)$

$(1, -1)$
 $-4 + 3$
 -1

2. A regular pentagon is shown in the diagram below.

$\frac{360}{5} = 72^\circ$



If the pentagon is rotated clockwise around its center, the minimum number of degrees it must be rotated to carry the pentagon onto itself is

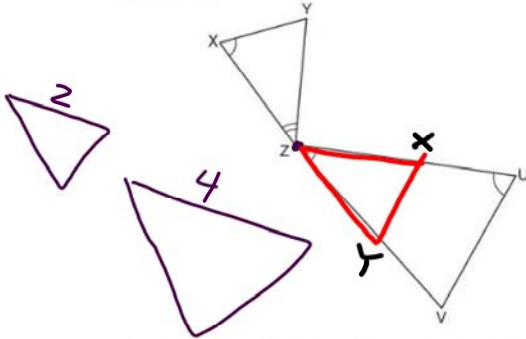
- (1) 54°
 (2) 72°
 (3) 108°
 (4) 360°
3. The equation of line h is $2x + y = 1$. Line m is the image of line h after a dilation of scale factor 4 with respect to the origin. What is the equation of the line m ?

- (1) $y = -2x + 1$
 (2) $y = -2x + 4$
 (3) $y = 2x + 4$
 (4) $y = 2x + 1$

$2x + y = 1$
 $y = -2x + 1$
 \downarrow
 $y = -2x + 4$

4. A quadrilateral has vertices with coordinates $(-3, 1)$, $(0, 3)$, $(5, 2)$, and $(-1, -2)$. Which type of quadrilateral is this?
 1 rhombus
 2 rectangle
 3 square
 (4) trapezoid

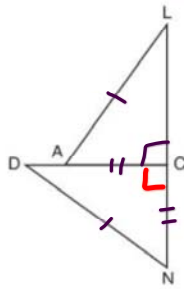
5. In the diagram below, triangles XYZ and UVZ are drawn such that $\angle X \cong \angle U$ and $\angle XZY \cong \angle UZV$.



$\triangle XYZ$ is being rotated about Z onto $\triangle UVZ$ and then it is dilated by a scale factor of $\frac{ZU}{ZX}$. These \triangle 's are similar by AA because when we rotate/dilate angle measure is preserved.

Describe a sequence of similarity transformations that shows $\triangle XYZ$ is similar to $\triangle UVZ$.

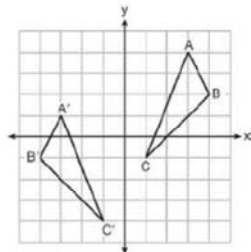
6. In the diagram of $\triangle LAC$ and $\triangle DNC$ below, $\overline{LA} \cong \overline{DN}$, $\overline{CA} \cong \overline{CN}$, and $\overline{DAC} \perp \overline{LCN}$.



- a) Prove that $\triangle LAC \cong \triangle DNC$.

(S)	(R)
①	① Given
② $\angle ACL$ and $\angle DCN$ are right \angle 's	② \perp lines form right \angle 's
③ $\angle ACL \cong \angle DCN$	③ All right \angle 's are \cong
④ $\triangle LAC \cong \triangle DNC$	④ $HL \cong HL$ ← these are right \triangle 's

7. As graphed on the set of axes below, $\triangle A'B'C'$ is the image of $\triangle ABC$ after a sequence of transformations.



- Reflection over y axis
 - Translation 3 units down
 - Distance is preserved

Is $\triangle A'B'C'$ congruent to $\triangle ABC$? Use the properties of rigid motion to explain your answer.