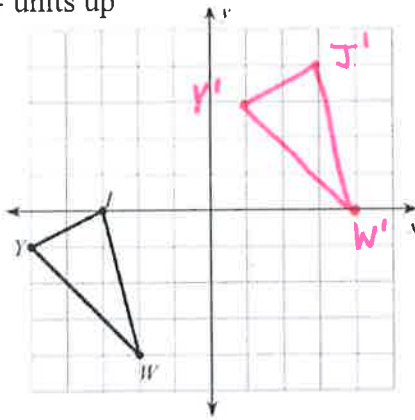


Name: Key

Class: \_\_\_\_\_

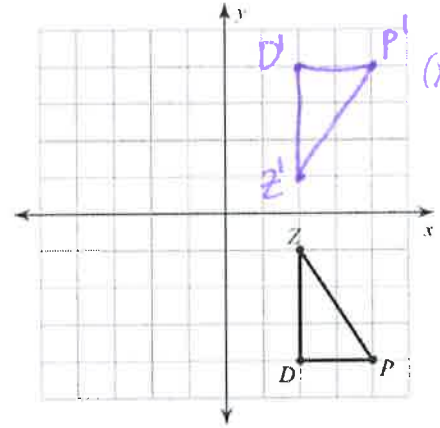
NC Math 2: Unit 1 Review Sheet

1. Translate the triangle 6 units right and 4 units up



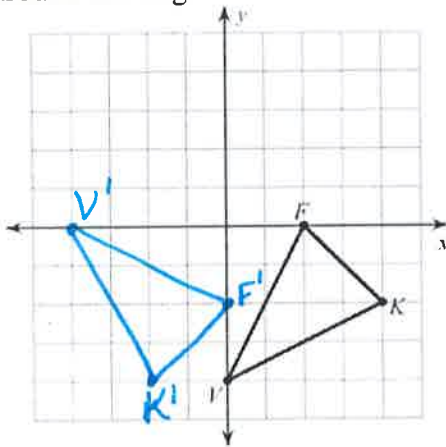
$(x, y) \rightarrow (x+6, y+4)$   
 ↑  
 algebraic rule

2. Reflect the triangle over the x axis



$(x, y) \rightarrow (x, -y)$   
 ↑  
 algebraic rule

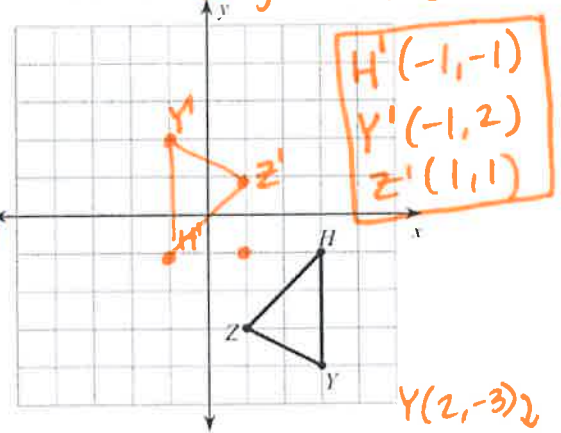
3. Rotate the triangle 270° counterclockwise around the origin



algebraic rule  
 $(x, y) \rightarrow (y, -x)$

$F(2, 0) \rightarrow F'(0, -2)$   
 $K(4, -2) \rightarrow K'(-2, -4)$   
 $V(0, -4) \rightarrow V'(-4, 0)$

4. Rotate the triangle 180° around the point (1, -1)

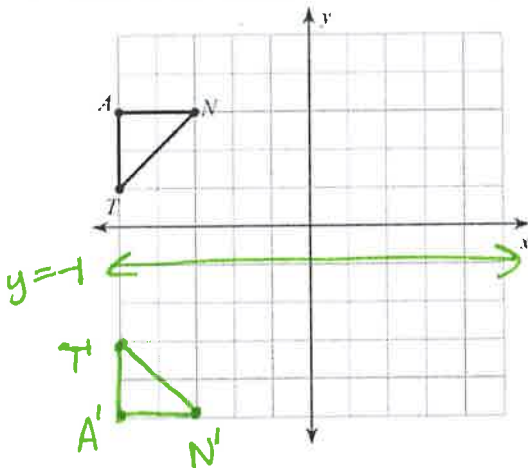


$(x, y) \rightarrow (-x, -y)$

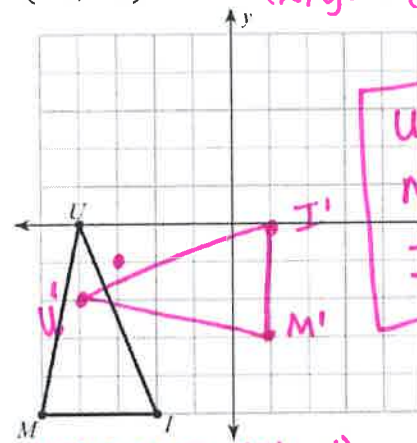
$H'(-1, -1)$
$Y'(-1, 2)$
$Z'(1, 1)$

$H(2, 0) \rightarrow (-2, 0)$     $Z(0, -2) \rightarrow (0, 2)$     $(-2, 3)$   
 $Y(2, -3) \rightarrow (-2, 3)$

5. Reflect the triangle over the line  $y = -1$



6. Rotate the triangle 90° counter-clockwise around (-3, -1)



$U'(-4, -2)$
$M'(1, -3)$
$I'(1, 0)$

$U(-1, 1) \rightarrow (-1, -1)$   
 $M(-2, -4) \rightarrow (4, -2)$   
 $I(1, -4) \rightarrow (4, 1)$

Make sure you know:

Vocabulary Words: Quadrilateral, Trapezoid, Rhombus

Algebraic Rules for Rotations and Reflections

Find the line of Reflection give a pre-image and image (see homework for practice)

7. What is the slope of a line that is parallel to  $y = 3x - 1$ ? What is the slope of a line that is perpendicular to  $y = 3x - 1$ ?

$m_{\parallel} = 3$  ;  $m_{\perp} = -\frac{1}{3}$

8. What is the slope of a line that is parallel to  $4x - 2y = 8$ ? What is the slope of a line that is perpendicular to  $4x - 2y = 8$ ?

$m_{\parallel} = 2$  ;  $m_{\perp} = -\frac{1}{2}$        $-2y = -4x + 8$   
 $y = 2x - 4$

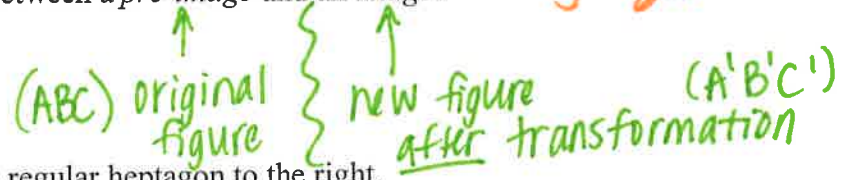
9. B Which equation is parallel to  $y = -8x - 3$ ?

- A.  $y = \frac{1}{8}x + 4$       B.  $-8x + y = 2$       C.  $\frac{1}{8}x - y = 1$       D.  $y = -8x - 6$
- $y = 8x + 2$        $-y = -\frac{1}{8}x + 1$        $y = \frac{1}{8}x - 1$

10. A Which equation is perpendicular to  $y = -\frac{1}{6}x - 5$ ?

- A.  $y = 6x - 2$       B.  $6x + y = 2$       C.  $\frac{1}{6}x - y = -1$       D.  $y = -6x - 3$
- $y = -6x + 2$        $-y = -\frac{1}{6}x - 1$        $y = \frac{1}{6}x + 1$

11. What is the difference between a *pre-image* and an *image*?



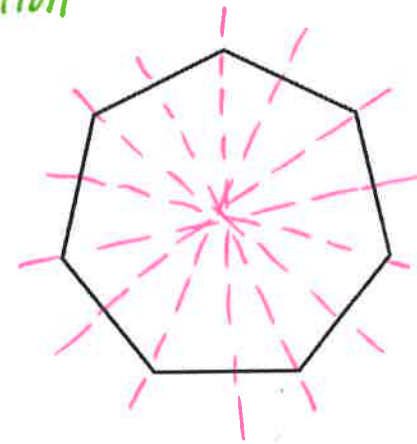
For questions 12-14, use the regular heptagon to the right.

12. List ALL the angles of rotation up to  $360^\circ$  that will carry the figure onto itself.

Approximately (nearest tenth)  $51.4^\circ, 102.8^\circ, 154.2^\circ, 205.6^\circ, 257^\circ, 308.4^\circ, 359.8^\circ$

13. On the heptagon, draw the lines of symmetry that carry the figure onto itself.

14. How many lines of symmetry are there? 7



Determine if the images below have rotational symmetry, line symmetry, both, or none.

