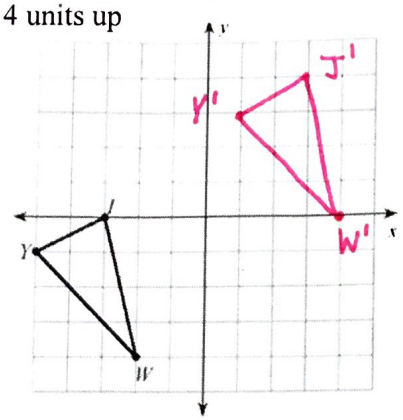
Name: Key Class: _____

NC Math 2: Unit 1 Review Sheet

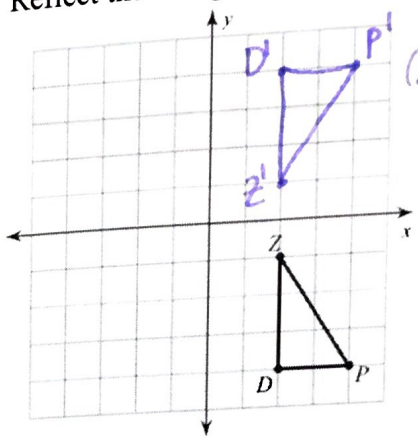
1. Translate the triangle 6 units right and 4 units up



$(x,y) \rightarrow (x+6, y+4)$

↑ algebraic rule

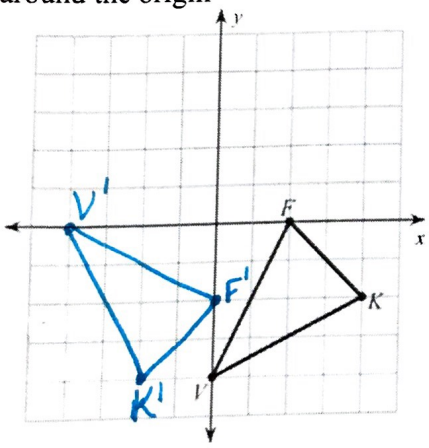
2. Reflect the triangle over the x axis



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

↑ algebraic rule

3. Rotate the triangle 270° counterclockwise around the origin



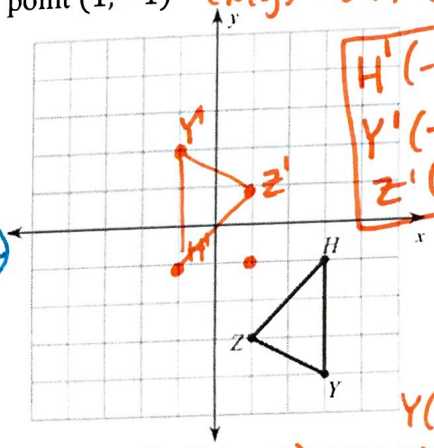
algebraic rule
$(x,y) \rightarrow (y,-x)$

$F(2,0) \rightarrow F'(0,-2)$

$K(4,-2) \rightarrow K'(-2,-4)$

$V(0,-4) \rightarrow V'(-4,0)$

4. Rotate the triangle 180° around the point $(1,-1)$ $(x,y) \rightarrow (-x,-y)$

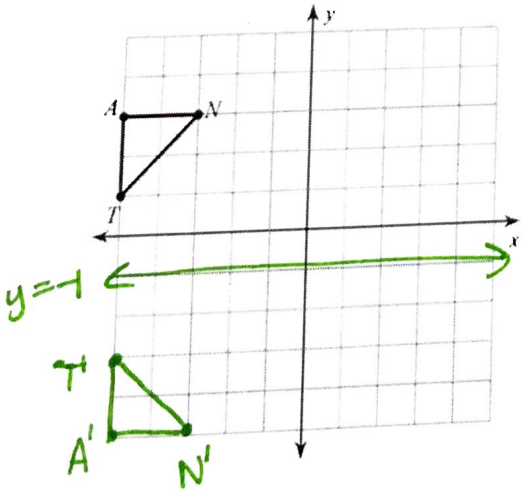


$H'(-1,-1)$
$Y'(-1,2)$
$Z'(1,1)$

$Y(2,-3) \rightarrow (-2,3)$

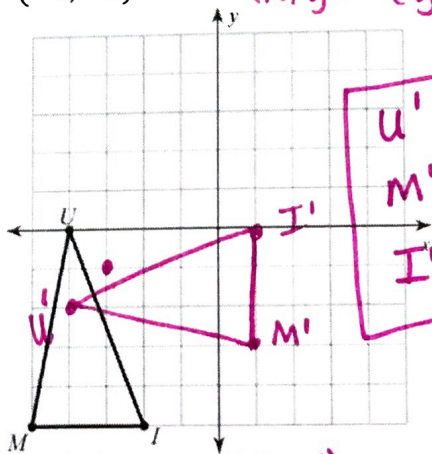
$H(2,0) \rightarrow (-2,0)$ $Z(0,-2) \rightarrow (0,2)$

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



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

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



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

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

Make sure you know:

Vocabuary 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 ~~perpenicular~~ 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 ~~perpenicular~~ perpendicular to $4x - 2y = 8$?

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

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. $y = -8x - 6$

$y = 8x + 2$ $\quad -y = -\frac{1}{8}x + 1$ $\quad y = \frac{1}{8}x - 1$

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

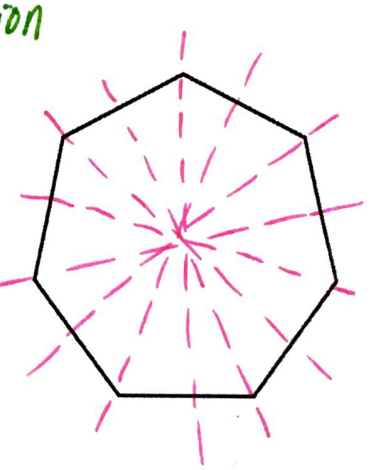
A. $y = 6x - 2$ B. $6x + y = 2$ C. $\frac{1}{6}x - y = -1$ D. $y = -6x - 3$

$y = -6x + 2$ $\quad -y = -\frac{1}{6}x - 1$ $\quad y = \frac{1}{6}x + 1$

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

(ABC) original figure ; new figure after transformation (A'B'C')

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



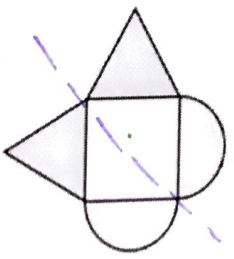
12. List ALL the angles of rotation up to 360° that will carry the figure onto itself.

Approximately (nearest tenth) 51.4°, 102.8°, 154.2°, 205.6°, 257°, 308.4°, 359.8°

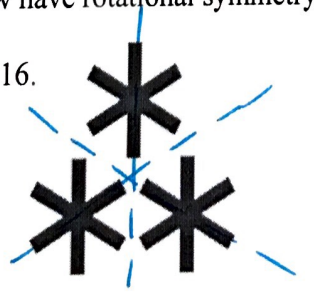
13. On the heptagon, draw the lines of symmetry that carry the figure onto itself.

14. How many lines of symmetry are there? 7

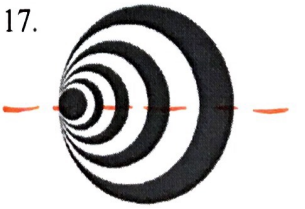
Determine if the images below have rotational symmetry, line symmetry, both, or none.

15. 

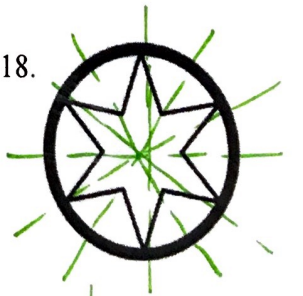
line symmetry

16. 

both

17. 

line symmetry

18. 

both