Unit 1 - Transformations Review Name: Key →

Translation: object moves a certain distance and direction (slide)

Reflection: move across a line, mirror image (flip)

Rotation: move about a point a given degree (turn)

Dilation: change the size of an object (resize)

When doing all transformations we always start with the pre-image points A, B, C ... and then we plot the image points A', B', C' ... (We call A - prime)

When a pre-image is translated, rotated, and reflected it is congruent to the image.

*** Dilations do not produce congruent images.

Describe the following Transformations:

(x,y)→(x+6 ,y -4) Right 6, Down 4 CONGRUENT or NOT CONGRUENT

(x,y)→(x-2 ,y+1) Left 2, Up 1 CONGRUENT or NOT CONGRUENT

(x,y)→(2x ,2y) Dilate by 2! CONGRUENT or NOT CONGRUENT

(x,y)→(x+7 ,y+6) Right 7, Up 6 CONGRUENT or NOT CONGRUENT

(x,y)→(x-8 ,y-9) Left 8 Down 9 CONGRUENT or NOT CONGRUENT

(x,y)→(½ x ,½ y) Dilate by 1/2 CONGRUENT or NOT CONGRUENT

* Anytime you Multiply → NOT Congruent

If we want to undo a transformation, we want to do the opposite opperations!

Undo the following Transformations:

(x,y)→(x+6 ,y -4) to undo.... (x,y)→(X-6 , y+4)

(x,y)→(x-2 ,y+1) to undo.... (x,y)→(X+2 , y-1)

(x,y)→(2x ,2y) to undo.... (x,y)→($\frac{1}{2}$X , 1/2y)

(x,y)→(x+7 ,y+6) to undo.... (x,y)→(X-7 , y-6)

(x,y)→(x-8 ,y-9) to undo.... (x,y)→(X+8 , y+9)

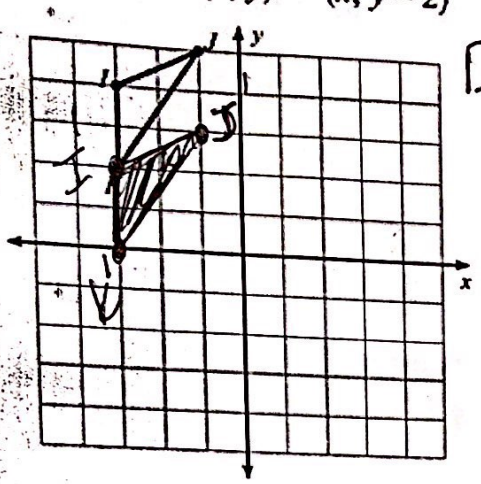
(x,y)→(½ x ,½ y) to undo.... (x,y)→(2X , 2y)

Unit 1 – Transformations Review

Name: _____

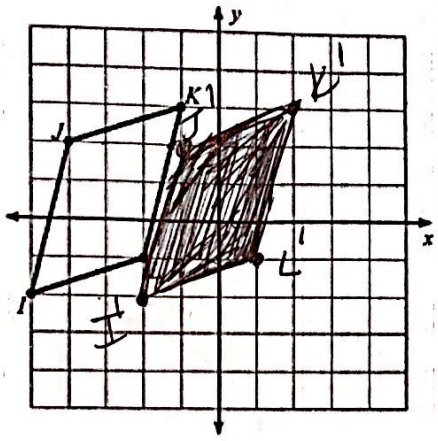
Graph the image of the figure using the transformation given.

1) translation: $(x, y) \rightarrow (x, y-2)$



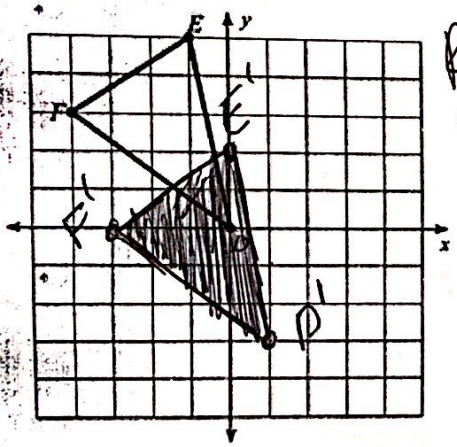
Down 2

2) translation: $(x, y) \rightarrow (x+3, y)$



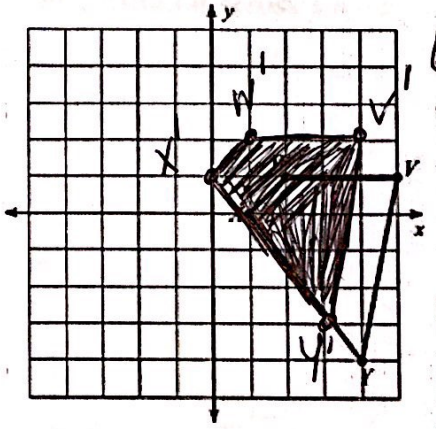
Right 3

3) translation: $(x, y) \rightarrow (x+1, y-3)$



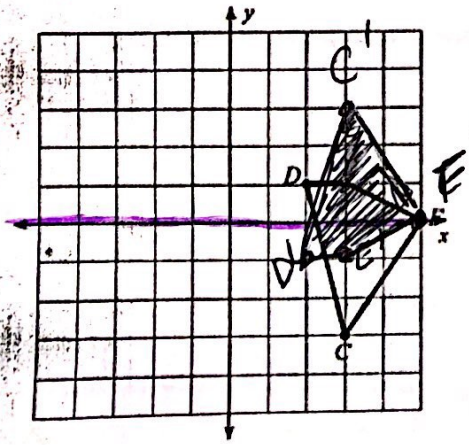
Right 1
Down 3

4) translation: $(x, y) \rightarrow (x-1, y+1)$



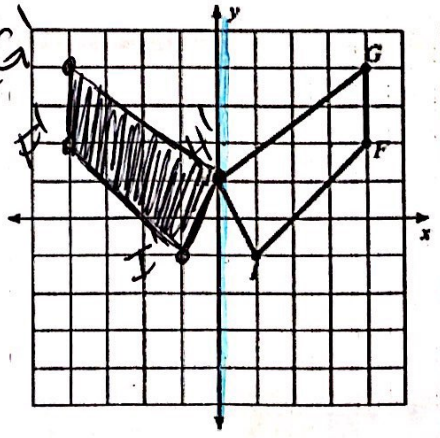
Left 1
Up 1

5) reflection across the x-axis



*Same Distance from line of Reflection

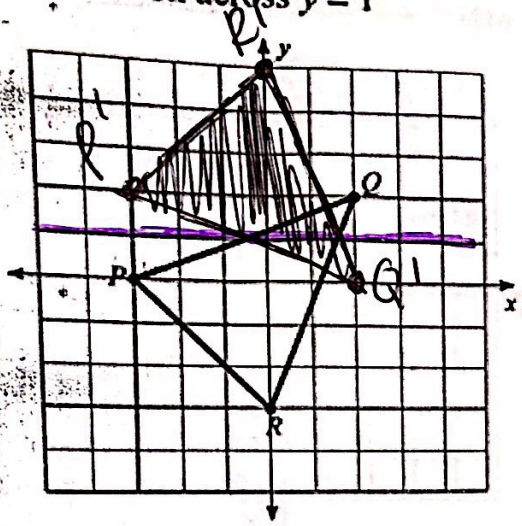
6) reflection across the y-axis



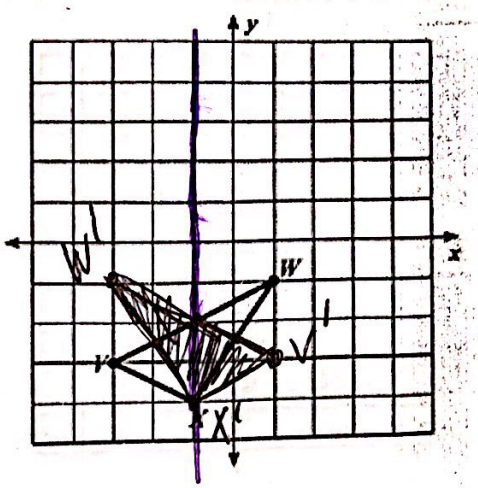
Unit 1 - Transformations Review

Name: _____

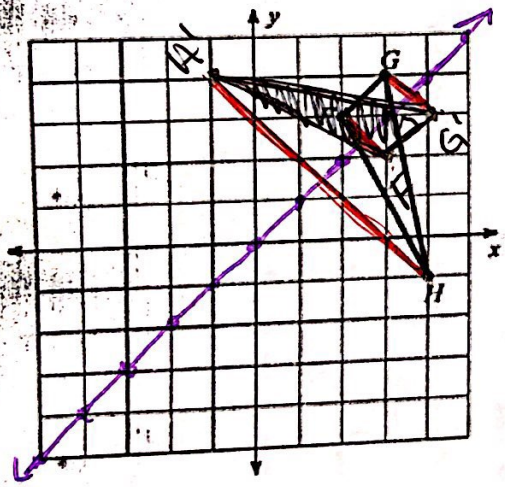
7) reflection across $y = 1$



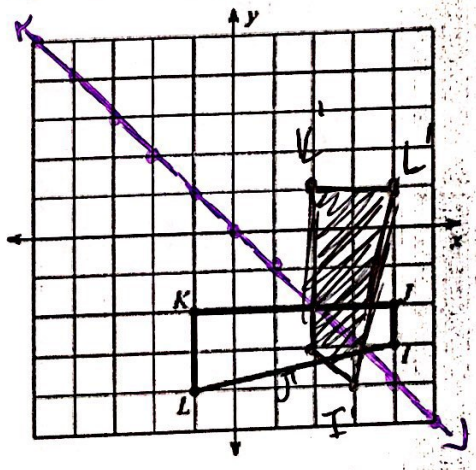
8) reflection across $x = -1$



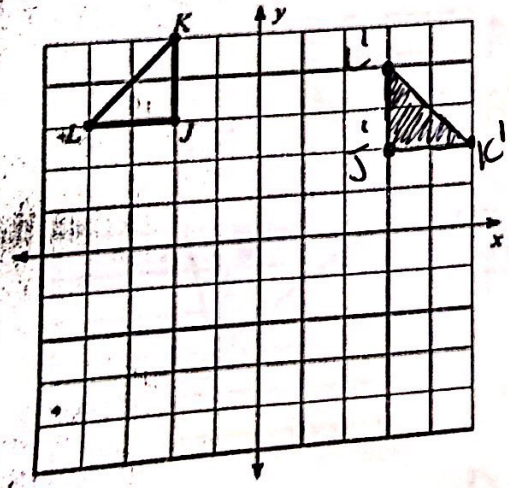
9) reflection across $y = x$



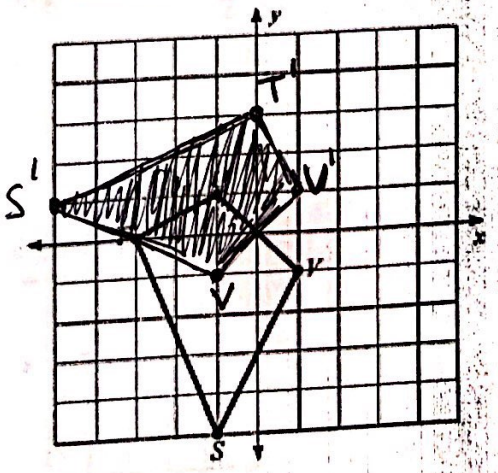
10) reflection across $y = -x$



11) rotation 90° clockwise about the origin



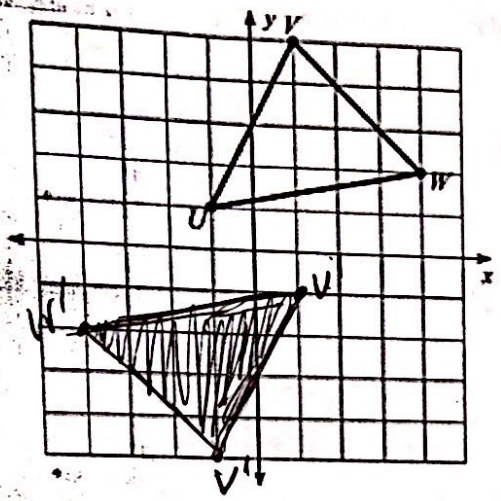
12) rotation 90° clockwise about the origin



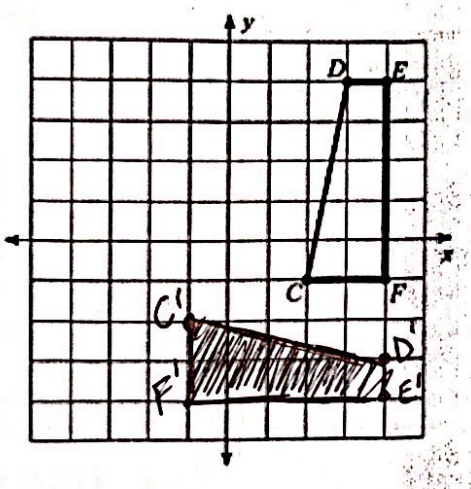
Unit 1 - Transformations Review

Name:_____

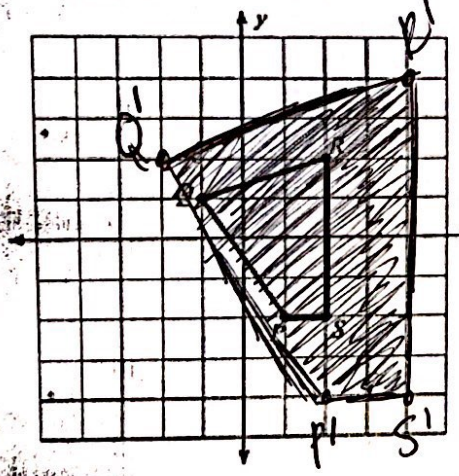
13) rotation 180° about the origin



14) rotation 90° clockwise about the origin

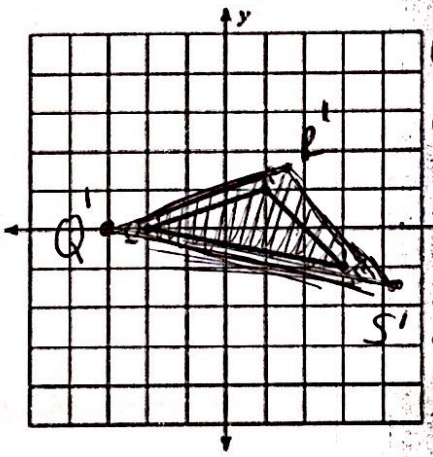


15) dilation of 2 about the origin



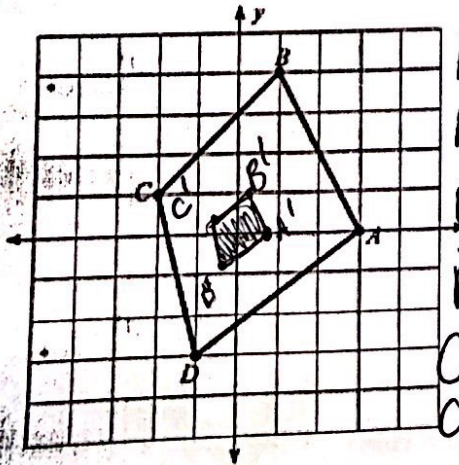
Q(-1,1)
Q'(-2,2)
R(2,2)
P'(4,4)
P(1,-2)
P'(2,-4)
S(2,-2)
S'(4,-4)

16) dilation of 1.5 about the origin



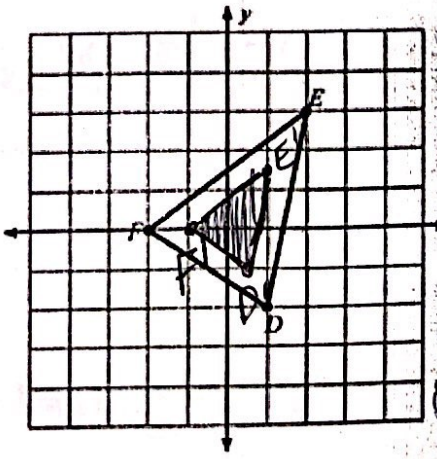
Q(-2,0)
Q'(3,0)
R(1,1)
P'(1.5,1.5)
S(3,1)
S'(4.5,1.5)

17) dilation of 0.25 about the origin



A(3,0)
A'(.75,0)
B(1,4)
B'(.25,1)
C(-2,1)
C'(-.5,.25)
D(-1,-3)
D'(-.25,-.75)

18) dilation of $\frac{1}{2}$ about the origin

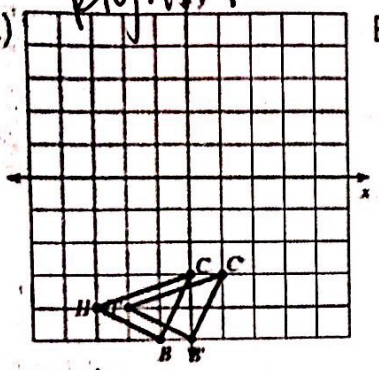


E(2,3)
E'(1,1.5)
F(2,0)
F'(1,0)
D(1,-2)
D'(.5,-1)

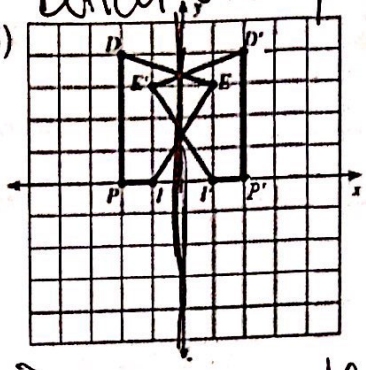
Unit 1 - Transformations Review Name: _____

19) Label each type of transformation below. Be specific! State directions, degrees (rotations), and lines of reflections.

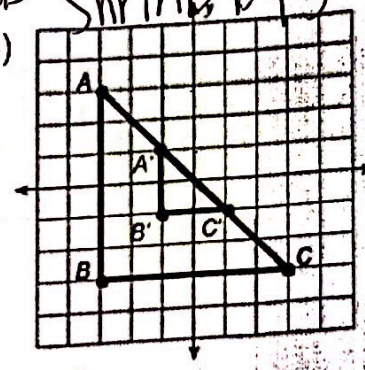
A) Right, 1



B) Reflect over y-axis

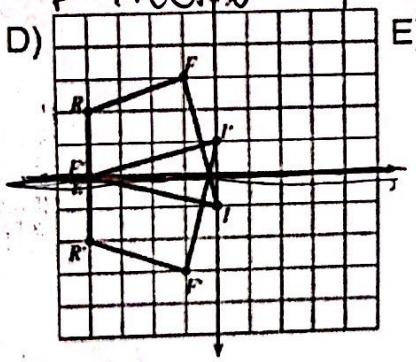


C) Shrink by $\frac{1}{3}$ Dilate

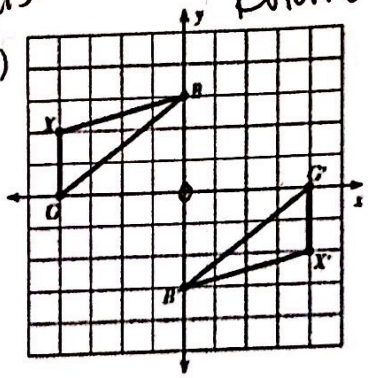


A(3, 3)
A'(1, 1)
B(-3, -3)
B'(-1, -1)
C(3, -3)
C'(1, -1)

D) Reflect over x-axis



E) Rotate 180°



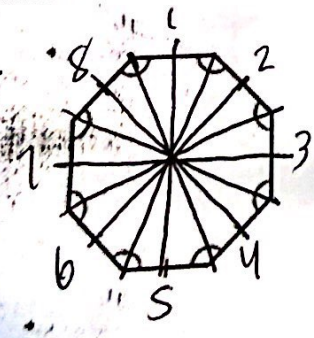
What is Rotational Symmetry: when a shape can be rotated onto itself

Smallest Angle of Rotational Symmetry = $\frac{360}{\#\text{ of sides}}$

What is a Line of Symmetry: a line a shape can be reflected onto itself equal to the number of sides

Find the smallest angle of rotational symmetry, additional angles and lines of symmetry for the following figures: Draw them in!

1.



Shape Name: Octagon

Smallest Angle: 360/8 = 45°

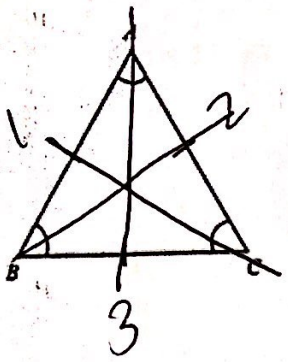
Other Angles: 45, 90, 135, 180, 225, 270, 315, 360

Lines of Symmetry: 8

1. T... Transformations Review

Name: _____

2.



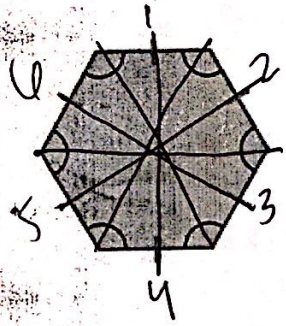
Shape Name: Triangle

Smallest Angle: 360/3 = 120°

Other Angles: 120, 240, 360

Lines of Symmetry: 3

3



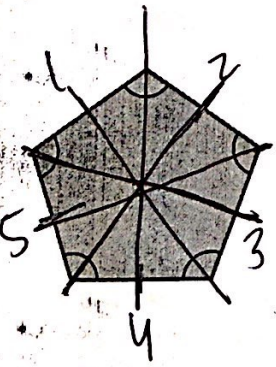
Shape Name: Hexagon

Smallest Angle: 360/6 = 60°

Other Angles: 60, 120, 180, 240, 300, 360

Lines of Symmetry: 6

4.



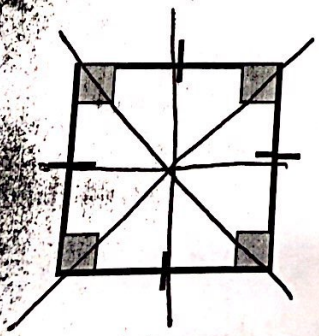
Shape Name: Pentagon

Smallest Angle: 360/5 = 72°

Other Angles: 72, 144, 216, 288, 360

Lines of Symmetry: 5

5.



Shape Name: Square

Smallest Angle: 360/4 = 90

Other Angles: 90, 180, 270, 360

Lines of Symmetry: 4