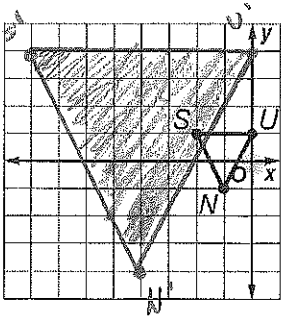


Dilation Review

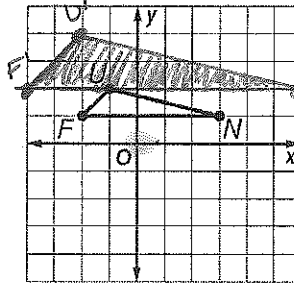
Find the coordinates of the vertices of each figure after a dilation centered at the origin with the given scale factor k . Then graph the original image and the dilation.

1. $S(-2, 1), U(0, 1), N(-1, -1), k=4$



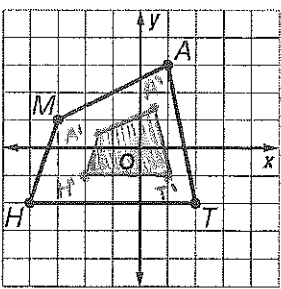
(x, y)	\rightarrow	$(4x, 4y)$
S(-2, 1)		S'(-8, 4)
U(0, 1)		U'(0, 4)
N(-1, -1)		N'(-4, -4)

2. $F(-2, 1), U(-1, 2), N(3, 1), k=2$



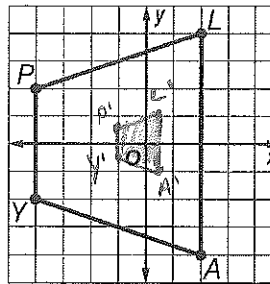
(x, y)	\rightarrow	$(2x, 2y)$
F(-2, 1)		F'(-4, 2)
U(-1, 2)		U'(-2, 4)
N(3, 1)		N'(6, 2)

3. $M(-3, 1), A(1, 3), T(2, -2), H(-4, -2), k=\frac{1}{2}$



(x, y)	\rightarrow	$(\frac{1}{2}x, \frac{1}{2}y)$
M(-3, 1)		M'(-1.5, 0.5)
A(1, 3)		A'(0.5, 1.5)
T(2, -2)		T'(1, -1)
H(-4, -2)		H'(-2, -1)

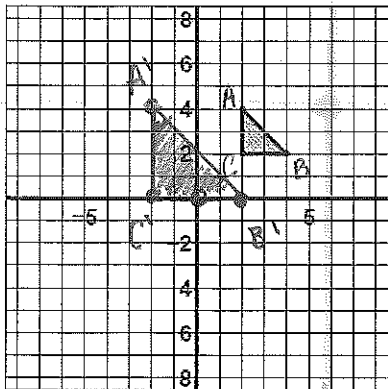
4. $P(-4, 2), L(2, 4), A(2, -4), Y(-4, -2), k=\frac{1}{4}$



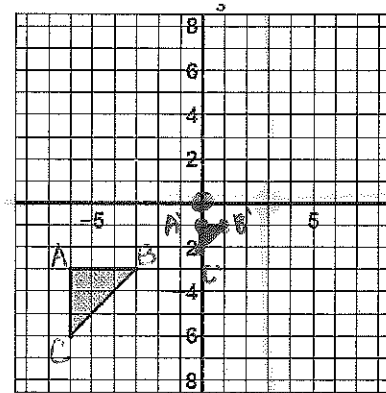
(x, y)	\rightarrow	$(\frac{1}{4}x, \frac{1}{4}y)$
P(-4, 2)		P'(-1, 0.5)
L(2, 4)		L'(0.5, 1)
A(2, -4)		A'(0.5, -1)
Y(-4, -2)		Y'(-1, -0.5)

Find the coordinates of the vertices of each figure after a dilation centered at the ~~origin~~ ^{point given} with the given scale factor c . Then graph the original image and the dilation.

5. Dilate by $c = 2$, center $(6, 4)$



6. Dilate by $c = \frac{1}{3}$, center $(3, 0)$



Coordinates from Center (not origin)	Dilation	Coordinates of Image from the origin
	$(2x, 2y)$	
A(-4, 0)		A'(-2, 4)
B(-2, -2)		B'(2, 0)
C(-4, -2)		C'(-2, 0)

Coordinates from Center (not origin)	Dilation	Coordinates of Image from the origin
	$(\frac{1}{3}x, \frac{1}{3}y)$	
A(-9, -3)		A'(-3, -1)
B(-6, -3)		B'(-2, -1)
C(-9, -6)		C'(-3, -2)

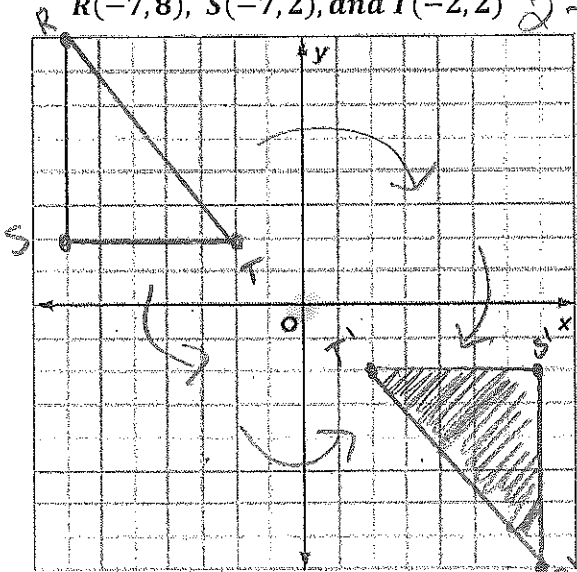
Rotation Review

$90^\circ \text{ cw } (x,y) \rightarrow (y, -x)$
 $180^\circ (x,y) \rightarrow (-x, -y)$
 $90^\circ \text{ ccw } (x,y) \rightarrow (-y, x)$

$90^\circ \text{ cw } (x,y) \rightarrow (y, -x)$
 $180^\circ (x,y) \rightarrow (-x, -y)$
 $90^\circ \text{ ccw } (x,y) \rightarrow (-y, x)$

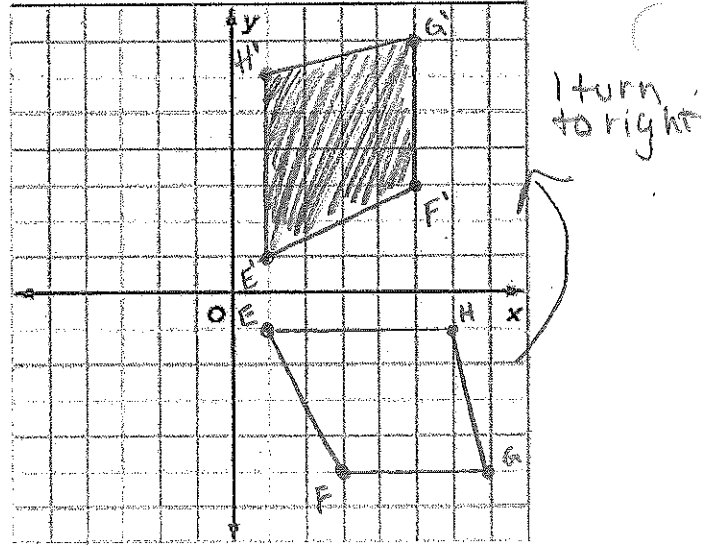
7. Graph triangle RST and rotate 180° about the origin.

$R(-7, 8)$, $S(-7, 2)$, and $T(-2, 2)$ *2 turns either way*



(x, y)	\rightarrow	$(-x, -y)$
R (-7, 8)		R' (7, -8)
S (-7, 2)		S' (7, -2)
T (-2, 2)		T' (2, -2)

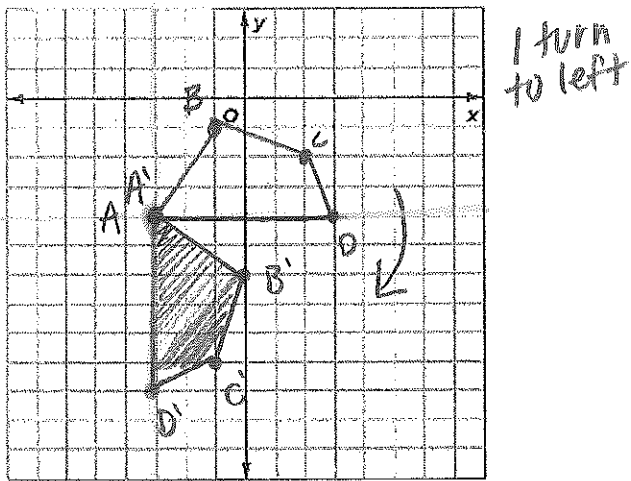
8. Graph quadrilateral EFGH and rotate 90° ccw about the origin $E(1, -1)$, $F(3, -5)$, $G(7, -5)$, $H(6, -1)$



(x, y)	\rightarrow	$(-y, x)$
E (1, -1)		E' (1, 1)
F (3, -5)		F' (5, 3)
G (7, -5)		G' (5, 7)
H (6, -1)		H' (1, 6)

9. Graph quadrilateral ABCD from the origin.

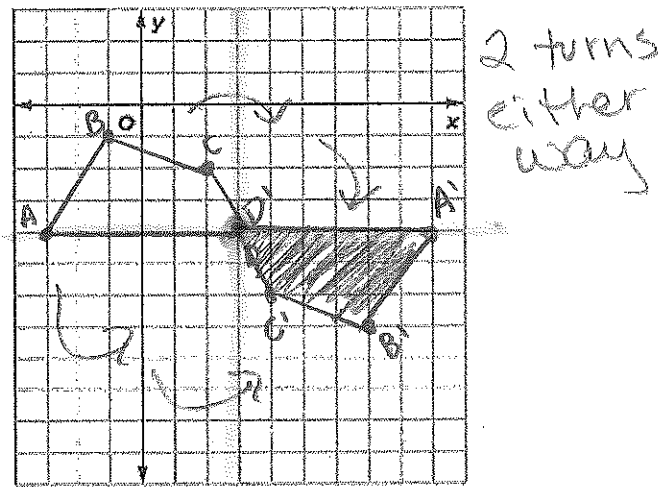
$A(-3, -4)$, $B(-1, -1)$, $C(2, -2)$, $D(3, -4)$
 Follow table to rotate 90° cw about vertex A.



Coordinates from Vertex (not origin)	Rotation	Coordinates of Image from the origin
A(0, 0)	$(y, -x)$	A'(-3, -4)
B(2, 3)	$(3, -2)$	B'(0, -6)
C(5, 2)	$(2, -5)$	C'(-1, -9)
D(6, 0)	$(0, -6)$	D'(-3, -10)

10. Graph quadrilateral ABCD from the origin.

$A(-3, -4)$, $B(-1, -1)$, $C(2, -2)$, $D(3, -4)$
 Follow table to rotate 180° about vertex D.



Coordinates from Vertex (not origin)	Rotation	Coordinates of Image from the origin
A(-6, 0)	$(-x, -y)$	A'(9, -4)
B(-4, 3)	$(4, -3)$	B'(7, -7)
C(1, 2)	$(1, -2)$	C'(4, -6)
D(0, 0)	$(0, 0)$	D'(3, -4)