

Directions: Use graph paper to perform the following transformations. Fill in the chart with the coordinates of the image. Attach your graph paper to the worksheet!

1. Pre-image: A(0,0), B(8,1), C(5,5)

Rotate the figure 180° $(-x, -y)$	$A'(0,0)$ $B'(-8,-1)$ $C'(-5,-5)$
Reflect the figure over the x-axis $(x, -y)$	$A''(0,0)$ $B''(-8,1)$ $C''(-5,5)$
Translate the figure according to $(x,y) \rightarrow (x+6,y-1)$ Right 6, Down 1	$A'''(6,-1)$ $B'''(-2,0)$ $C'''(1,4)$

2. Pre-image: D(-12,6), E(-4,6), F(-6,9), G(-10,9)

Translate the figure according to $(x,y) \rightarrow (x+1,y-6)$	$D'(-11,0)$ $E'(-3,0)$ $F'(-5,3)$ $G'(-9,3)$
Reflect the figure over the x-axis $(x, -y)$	$D''(11,0)$ $E''(-3,0)$ $F''(-5,-3)$ $G''(-9,-3)$
Reflect the figure over the y-axis $(-x, y)$	$D'''(-11,0)$ $E'''(3,0)$ $F'''(5,-3)$ $G'''(9,-3)$

3. Pre-image: H(2,2), I(-2,2), J(-2,-2), K(2,-2)

Rotate the figure 180° $(-x, -y)$	$H'(-2,-2)$ $I'(2,-2)$ $J'(2,2)$ $K'(-2,2)$
Translate the figure according to $(x,y) \rightarrow (x+2,y+2)$	$H''(0,0)$ $I''(4,0)$ $J''(4,4)$ $K''(0,4)$
Reflect the figure over the line $y = x$ (y, x)	$H'''(0,0)$ $I'''(0,4)$ $J'''(4,4)$ $K'''(4,0)$

4. Pre-image: L(7,2), M(0,9), N(-6,-5), P(1,-12)

Reflect the figure over the y-axis $(-x, y)$	$L'(-7,2)$ $M'(0,9)$ $N'(-6,-5)$ $P'(-1,-12)$
Reflect the figure over the x-axis $(x, -y)$	$L''(-7,-2)$ $M''(0,-9)$ $N''(6,5)$ $P''(-1,12)$
Rotate the figure 90° clockwise about the origin $(y, -x)$	$L(-2,7)$ $M(-9,0)$ $N(5,-6)$ $P(12,1)$

5. Pre-image: Q(0,0), R(-13,0), S(0,12)

Rotate the figure 270° clockwise about the origin $(-y, x)$	$Q'(0,0)$ $R'(0,13)$ $S'(-12,0)$
Translate the figure according to $(x,y) \rightarrow (x+5, y+5)$	$Q''(5,5)$ $R''(5,-8)$ $S''(-7,5)$

6. Pre-image: T(6,-3), U(8,-5), V(7,-7), W(5,-7), X(4,-5)

Translate the figure according to $(x,y) \rightarrow (x-4, y+3)$	$T'(2,0)$ $U'(4,2)$ $V'(3,-4)$ $W'(1,-4)$ $X'(0,-2)$
Reflect the figure over the line $y = x$ (y, x)	$T''(0,2)$ $U''(-2,4)$ $V''(-4,3)$ $W''(-4,1)$ $X''(-2,0)$
Rotate the figure 180° $(-x, -y)$	$T'''(0,-2)$ $U'''(2,-4)$ $V'''(4,-3)$ $W'''(4,-1)$ $X'''(2,0)$