

Practice: Transformation Compositions

Complete the chart with the work and final coordinates of the image for each step of the composition. Sketch the initial figure and final image on the graph provided. Label both figures.

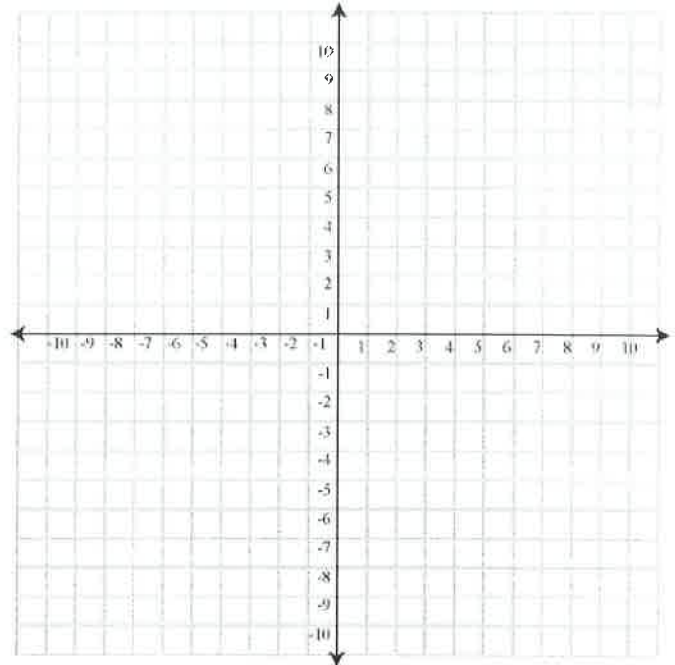
1. Pre-image: H(1,-2), I(3,1), J(-2,-3), K(1,-2)

Rotate the figure 180° about the origin. $(x,y) \rightarrow (-x,-y)$

- $H(1,-2) \rightarrow H'(-1,2)$
- $I(3,1) \rightarrow I'(-3,-1)$
- $J(-2,-3) \rightarrow J'(2,3)$
- $K(1,-2) \rightarrow K'(-1,2)$

Translate the figure according to $(x,y) \rightarrow (x+1, y+5)$

- $H'(-1,2) \rightarrow (-1+1, 2+5) \rightarrow H''(0,7)$
- $I'(-3,-1) \rightarrow (-3+1, -1+5) \rightarrow I''(-2,4)$
- $J'(2,3) \rightarrow (2+1, 3+5) \rightarrow J''(3,8)$
- $K'(-1,2) \rightarrow (-1+1, 2+5) \rightarrow K''(0,7)$



2. Pre-image: D(-10,6), E(-2,6), F(-4,9), G(-8,9) - Green

Translate the figure according to $(x,y) \rightarrow (x+1, y-8)$

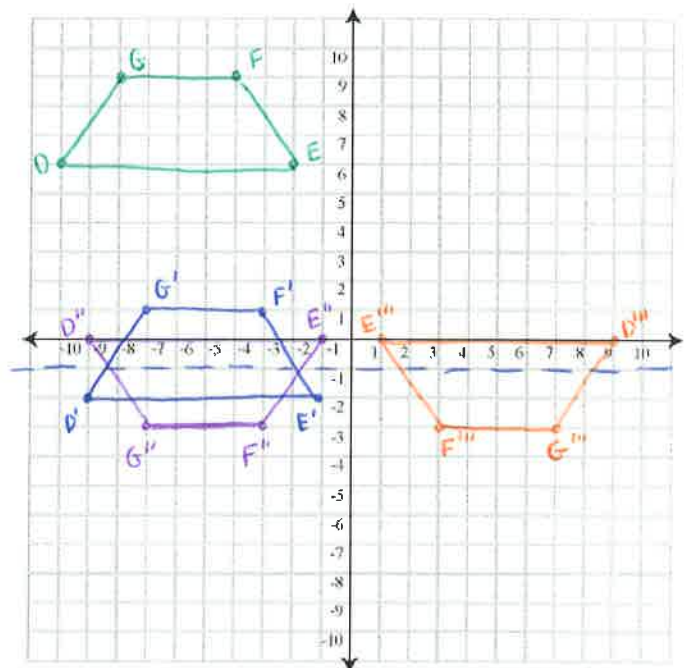
- $D(-10,6) \rightarrow (-10+1, 6-8) \rightarrow D'(-9,-2)$
 - $E(-2,6) \rightarrow (-2+1, 6-8) \rightarrow E'(-1,-2)$
 - $F(-4,9) \rightarrow (-4+1, 9-8) \rightarrow F'(-3,1)$
 - $G(-8,9) \rightarrow (-8+1, 9-8) \rightarrow G'(-7,1)$
- } blue

Reflect the figure over the line $y = -1$

- $D'(-9,-2) \rightarrow D''(-9,0)$
 - $E'(-1,-2) \rightarrow E''(-1,0)$
 - $F'(-3,1) \rightarrow F''(-3,-3)$
 - $G'(-7,1) \rightarrow G''(-7,-3)$
- } purple

Reflect the figure over the y-axis $(x,y) \rightarrow (-x,y)$

- $D''(-9,0) \rightarrow D'''(9,0)$
 - $E''(-1,0) \rightarrow E'''(1,0)$
 - $F''(-3,-3) \rightarrow F'''(3,-3)$
 - $G''(-7,-3) \rightarrow G'''(7,-3)$
- } orange



3. Pre-image: L(7,2), M(0,9), N(-6,-5) - Green

Reflect the figure over the y-axis $(x,y) \rightarrow (-x,y)$

$L(7,2) \rightarrow L'(-7,2)$
 $M(0,9) \rightarrow M'(0,9)$
 $N(-6,-5) \rightarrow N'(6,-5)$ } blue

Reflect the figure over the x-axis $(x,y) \rightarrow (x,-y)$

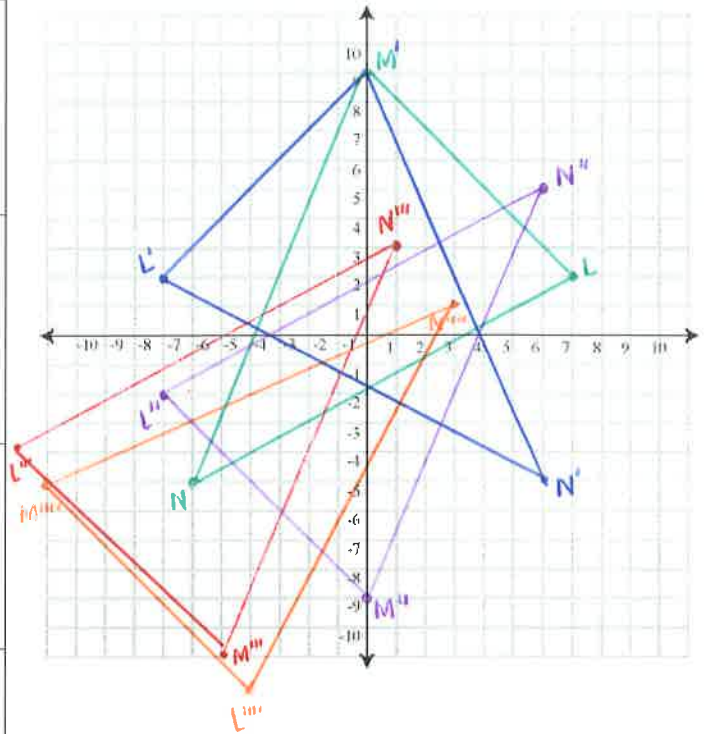
$L'(-7,2) \rightarrow L''(-7,-2)$
 $M'(0,9) \rightarrow M''(0,-9)$
 $N'(6,-5) \rightarrow N''(6,5)$ } purple

Translate the figure according to $(x,y) \rightarrow (x-5, y-2)$

$L''(-7,-2) \rightarrow (-7-5, -2-2) \rightarrow L'''(-12,-4)$
 $M''(0,-9) \rightarrow (0-5, -9-2) \rightarrow M'''(-5,-11)$
 $N''(6,5) \rightarrow (6-5, 5-2) \rightarrow N'''(1,3)$ } Red

Reflect the figure over the line $y = x$. $(x,y) \rightarrow (y,x)$

$L'''(-12,-4) \rightarrow L''''(-4,-12)$
 $M'''(-5,-11) \rightarrow M''''(-11,-5)$
 $N'''(1,3) \rightarrow N''''(3,1)$ } orange



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

Rotate the figure 270° about the origin. $(x,y) \rightarrow (y,-x)$

$A(0,0) \rightarrow A'(0,0)$
 $B(8,1) \rightarrow B'(1,-8)$
 $C(5,5) \rightarrow C'(5,-5)$ } blue

Reflect the figure over the line $x = 1$

$A'(0,0) \rightarrow A''(2,0)$
 $B'(1,-8) \rightarrow B''(1,-8)$
 $C'(5,-5) \rightarrow C''(-3,-5)$ } purple

Translate the figure according to $(x,y) \rightarrow (x+6, y-1)$

$A''(2,0) \rightarrow (2+6, 0-1) \rightarrow A'''(8,-1)$
 $B''(1,-8) \rightarrow (1+6, -8-1) \rightarrow B'''(7,-9)$
 $C''(-3,-5) \rightarrow (-3+6, -5-1) \rightarrow C'''(3,-6)$ } Red

Reflect over the line $y = -x$ $(x,y) \rightarrow (-y,-x)$

$A'''(8,-1) \rightarrow A''''(1,-8)$
 $B'''(7,-9) \rightarrow B''''(9,-7)$
 $C'''(3,-6) \rightarrow C''''(6,-3)$ } black

