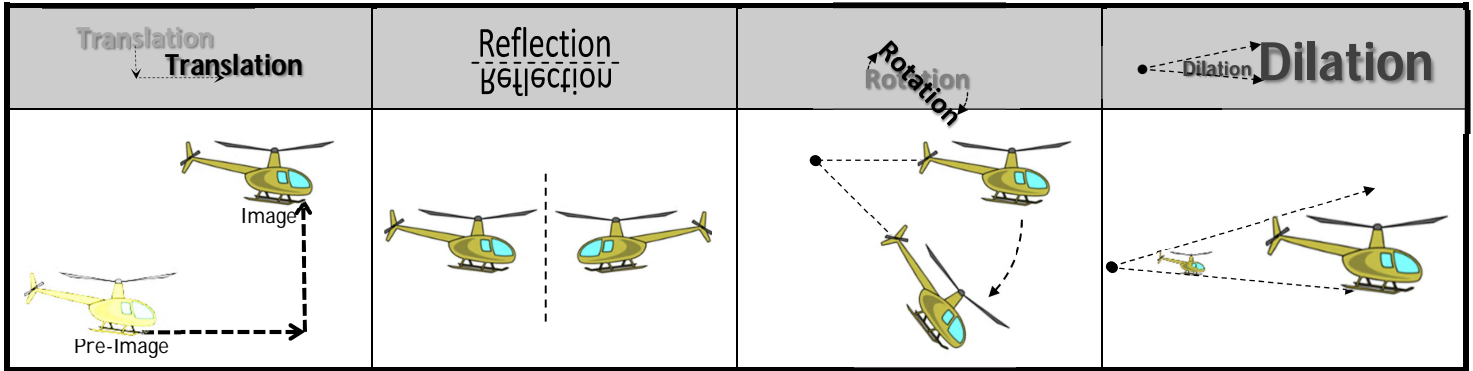


Transformation Types:



1. Consider the pre-image triangle with vertices A(1,2), B(3,1), and C(1,1). *ROTATE 90° (x,y) → (-y, x)*

a. Rotate the pre-image triangle ABC 90° about the origin and label this triangle A'B'C'

$$A' : (-2, 1) \quad C' : (-1, 1)$$

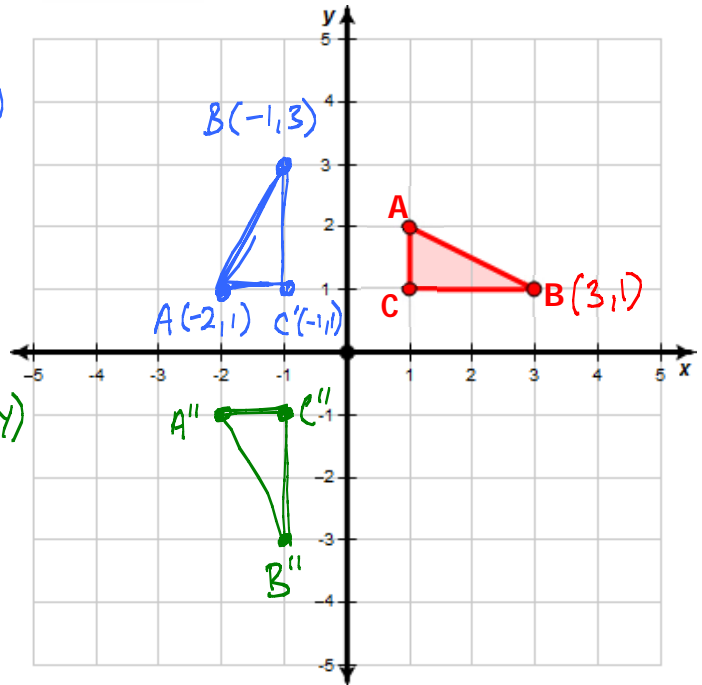
$$B' : (-1, 3)$$

b. Reflect the triangle A'B'C' over the x-axis and label this triangle A''B''C''.

REFLECT OVER X-AXIS (x,y) → (x,-y)

$$A''(-2, -1) \quad C''(-1, -1)$$

$$B''(-1, -3)$$



2. Consider the pre-image quadrilateral with vertices A(1,1), B(1,2), C(2,1), and D(2,0)

a. Dilate the quadrilateral by a factor of 2 from the origin and label the image quadrilateral A'B'C'D'.

DILATION (x,y) → (2x, 2y)

$$A' : (2, 2) \quad C' : (4, 2)$$

$$B' : (2, 4) \quad D' : (4, 0)$$

b. Translate the quadrilateral image A'B'C'D' down 5 units and left 1 unit. Label this new image A''B''C''D''.

DOWN 5 & LEFT 1 (x,y) → (x-1, y-5)

$$A'' : (1, -3) \quad C''(3, -3)$$

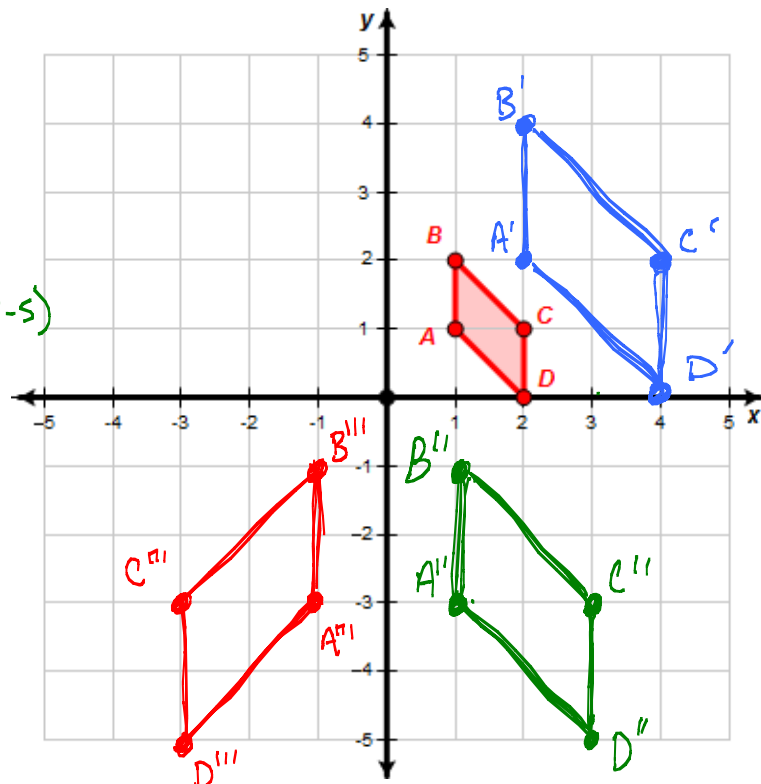
$$B'' : (1, -1) \quad D''(3, -5)$$

c. Reflect the quadrilateral image A''B''C''D'' over the y-axis and label this image A'''B'''C'''D'''.

REFLECT OVER Y-AXIS (x,y) → (-x, y)

$$A'''(-1, -3) \quad C'''(-3, -3)$$

$$B'''(-1, -1) \quad D'''(-3, -5)$$



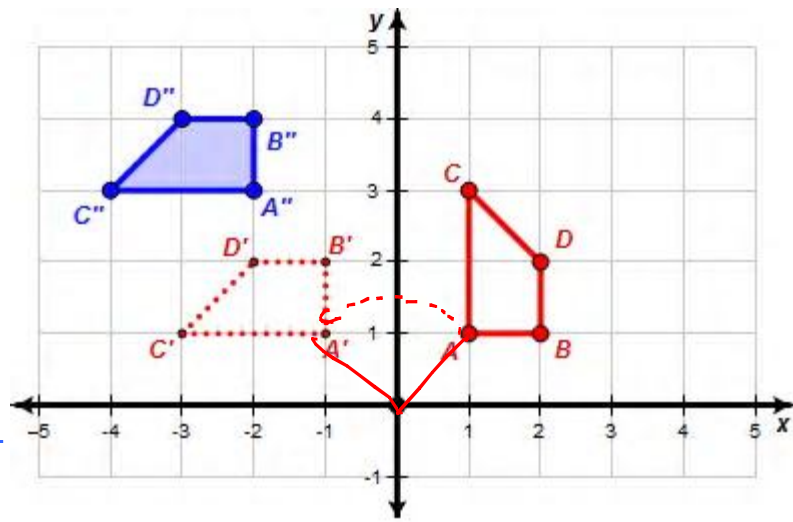
3. Describe two transformation that would map quadrilateral ABCD onto quadrilateral A''B''C''D''

TRANSFORMATION #1

ROTATE $\square ABCD$ 90°
ABOUT THE ORIGIN

TRANSFORMATION #2

TRANSLATE $\square A'B'C'D'$
LEFT 1 AND UP 2



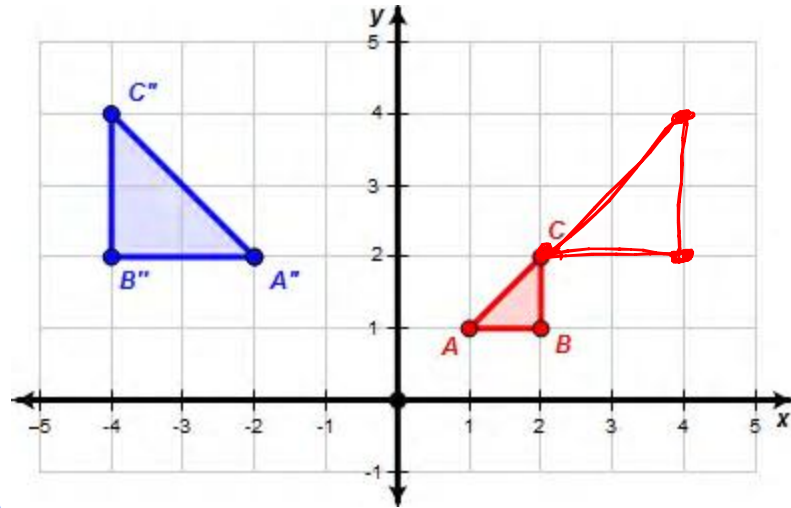
4. Describe two transformation that would map triangle ABC onto triangle A''B''C''

TRANSFORMATION #1

DILATE $\triangle ABC$ BY
SCALE FACTOR OF 2
FROM THE ORIGIN

TRANSFORMATION #2

REFLECT $\triangle A'B'C'$ OVER
THE Y-AXIS



5. First reflect quadrilateral ABCD over the y-axis and label the triangle A'B'C'D'. Then, reflect quadrilateral A'B'C'D' over the x-axis and label this quadrilateral A''B''C''D''.

Y-AXIS REFLECT
 $(x,y) \rightarrow (-x,y)$

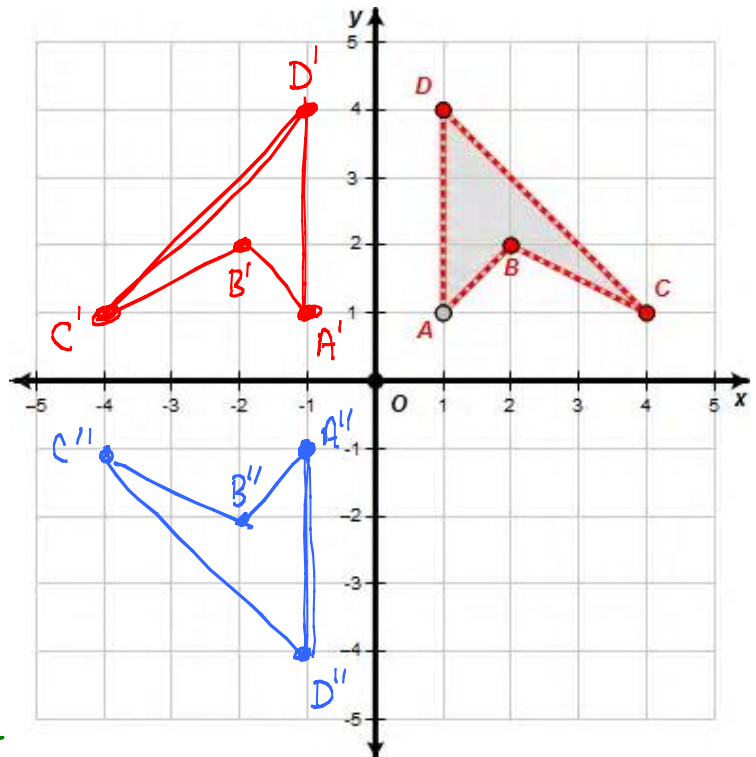
$A': (-1,1)$
 $B': (-2,2)$
 $C': (-4,1)$
 $D': (-1,4)$

X-AXIS REFLECT
 $(x,y) \rightarrow (x,-y)$

$A'': (-1,-1)$
 $B'': (-2,-2)$
 $C'': (-4,-1)$
 $D'': (-1,-4)$

6. Anytime you use a double reflection, there should be a rotation about the intersection of the reflection lines that maps the pre-image onto the final image. In this example what is the amount of the rotation?

ROTATION OF 180°
ABOUT THE ORIGIN.



7. Given that pentagon $DGHIJ$ is first reflected over **line m** to create the image $D'G'H'I'J'$. Then, the image $D'G'H'I'J'$ is reflected over the **line l** to create the image $D''G''H''I''J''$. What is a different transformation that would also map $DGHIJ$ onto $D''G''H''I''J''$?

A ROTATION OF 120°
ABOUT THE INTERSECTION
POINT OF THE
TWO LINES OF
REFLECTION.

