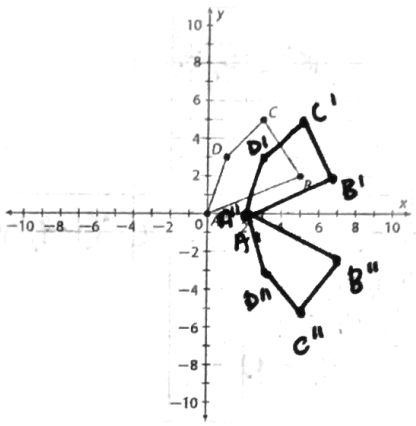
Name Key Date _____ Class _____

Sequences of Transformations and Symmetry Review

For each figure, draw the image after the given transformations.

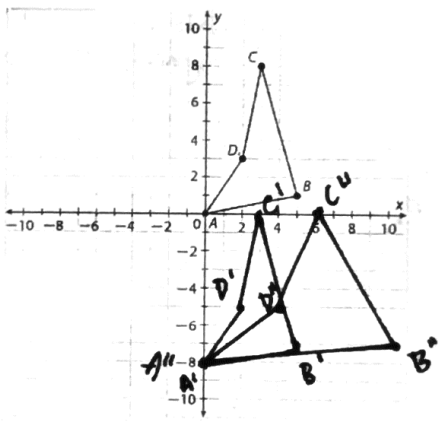
1. $(x, y) \rightarrow (x + 2, y) \rightarrow (x, -y)$

$A(0,0) \rightarrow A'(2,0) \rightarrow A''(2,0)$
$B(5,2) \rightarrow B'(7,2) \rightarrow B''(7,-2)$
$C(3,5) \rightarrow C'(5,5) \rightarrow C''(5,-5)$
$D(1,3) \rightarrow D'(3,3) \rightarrow D''(3,-3)$

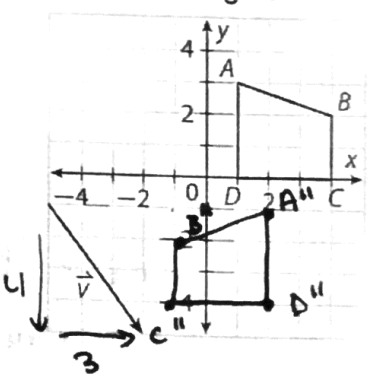


2. $(x, y) \rightarrow (x, y - 8) \rightarrow (2x, y)$

$A(0,0) \rightarrow A'(0,-8) \rightarrow A''(0,8)$
$B(5,1) \rightarrow B'(5,-7) \rightarrow B''(10,-7)$
$C(3,8) \rightarrow C'(3,0) \rightarrow C''(6,0)$
$D(2,3) \rightarrow D'(2,-5) \rightarrow D''(4,-5)$



(b) Translate along $\vec{v}$.



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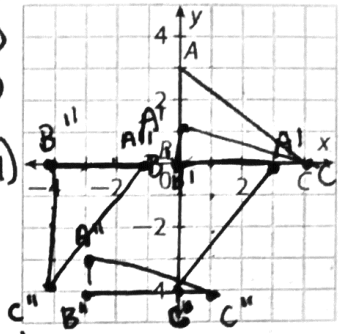
Predict the coordinates of the image if you performed the given sequence of transformation on the figure. ~~The first one is done for you.~~

4. $(x, y) \rightarrow (x, \frac{1}{3}y)$

$A(0,3) \rightarrow A'(0,1) \rightarrow A''(-3,-3)$
$B(0,0) \rightarrow B'(0,0) \rightarrow B''(-3,-4)$
$C(4,0) \rightarrow C'(4,0) \rightarrow C''(1,-4)$

Translate 4 units down and 3 units left.

Image coordinates: $A''(-3,-3), B''(-3,-4)$ $C''(1,-4)$



5. Rotate 90° clockwise about the origin.

Translate 4 units left.

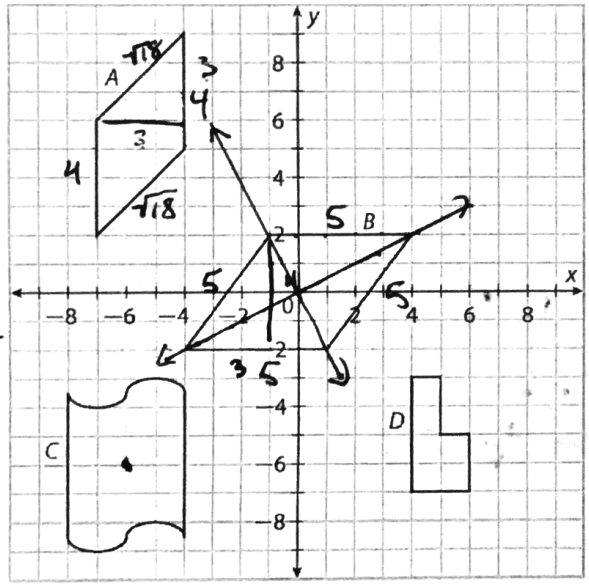
Image coordinates: $A''(-1,0)$ $B''(-4,0)$ $C''(-4,-4)$

$A(0,3) \rightarrow A'(3,0) \rightarrow A''(-1,0)$
$B(0,0) \rightarrow B'(0,0) \rightarrow B''(-4,0)$
$C(4,0) \rightarrow C'(0,-4) \rightarrow C''(-4,-4)$

Use the figures on the grid to answer the questions about symmetry.

$3^2+3^2=c^2$
$18=c^2$
$\sqrt{18}=c$

$3^2+4^2=c^2$
$9+16=c^2$
$25=c^2$
$5=c$



6. Does figure *A* have line symmetry, rotational symmetry, both, or neither? Explain your answer.

No line symmetry and Rotational symmetry of 180° because the sides are not the same length so there is not reflectional symmetry.

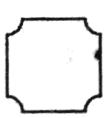
7. What are the equations of the lines of symmetry for figure *B*?

$y = \frac{1}{2}x$ $y = -2x$

8. Describe the symmetry of figure *C*.

rotational symmetry of 180° around. (-6, -6)

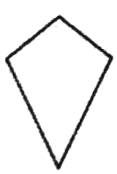
Tell whether each figure appears to have line symmetry, rotational symmetry, both, or neither. If line symmetry, tell how many lines of symmetry. If rotational symmetry, give the angle of rotational symmetry.

4. 

lines → 4
rotational → 90°, 180°, 270°

5. 

lines → 0
rotational 180°

6. 

lines → 1

7. 

lines → 5
rotational → 72°, 144°, 216°, 288°