Directions: Write the rule of the reflection.

1) A line segment is reflected over the y-axis.

$$(x, y) \rightarrow' (-x, y)$$

2) A triangle is reflected over the x-axis.

$$(x, y) \rightarrow' (x, -y)$$

Directions: Describe the transformation. (This is a mixed review & includes sequences of transformations).

3) $(x, y) \rightarrow '(x, -y)$

reflection across
y=0 (x-axis)

4) $(x, y) \rightarrow '(x + 2, y)$

Right 2 units

5) $(x, y) \rightarrow '(-x, y)$

Reflection across
x=0 (y-axis)

6) $(x, y) \rightarrow '(x - 4, y)$

Left 4 units

*7) $(x, y) \rightarrow ''(-x, y + 1)$

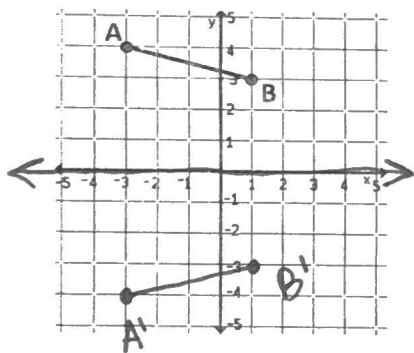• reflect across y-axis
• up 1 unit

*8) $(x, y) \rightarrow ''(x + 3, -y - 5)$

• reflect across x-axis
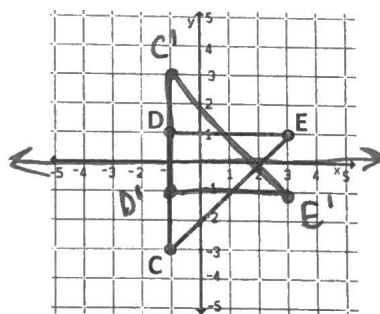• Right 3, down 5

Directions: Complete the transformation of the new image. If the rule was provided, describe the transformation. If the transformation was described, write the rule.
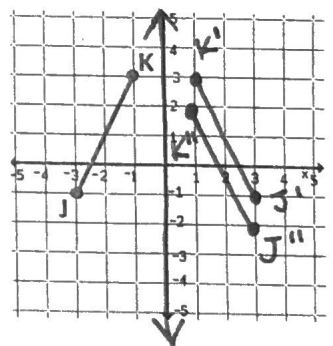
9) $AB(x, y) \rightarrow A'B'(x, -y)$

Reflect across x-axis

10) $CDE (x, y) \rightarrow C'D'E' (x, -y)$
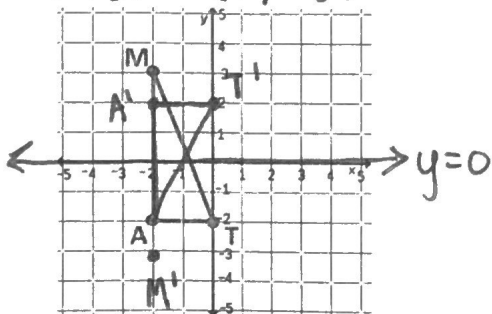

Reflect across x-axis

11) $JK(x, y) \rightarrow J''K''(-x, y - 1)$
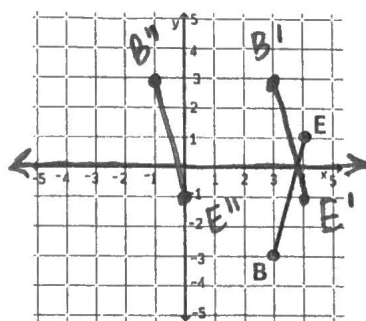

• Reflect across y-axis
• down 1

12) Reflect over y = 0.

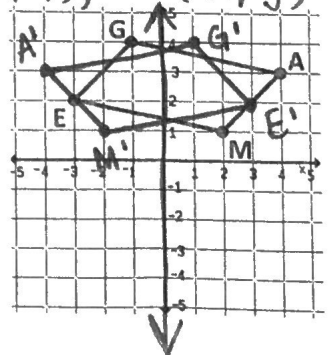$$(x, y) \rightarrow '(x, -y)$$

13) Reflect over the x-axis.
   Then, translate left 4 units.

$$(x, y) \rightarrow ''(x - 4, -y)$$

14) Reflect over the y-axis.

$$(x, y) \rightarrow '(-x, y)$$

Directions: Find the missing point using the given information.

15) If the result of $(x, y) \rightarrow '(x - 1, y + 2)$ is A'(−5, 2), what is the **pre-image**, or A?

$$A(-4, 0)$$

16) The pre-image (−3, −9) is reflected using the rule $(x, y) \rightarrow '(x, -y)$. What is the image coordinate?

$$'(-3, 9)$$

17) If B(4, −2) is applied to $(x, y) \rightarrow '(-x, y)$, what is the coordinate that represents the image?

$$B'(-4, -2)$$

18) If the result of $(x, y) \rightarrow '(-x, y)$ is B'(−6, −1), what is the **pre-image**, or B?
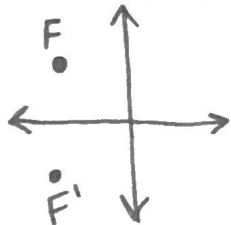
$$B(6, -1)$$

Directions: Solve each problem.

19) C(3, −2) and D(−1, 0) transforms to C'(−3, −2) and D'(1, 0). What transformation has occurred?

- $(x, y) \rightarrow '(-x, y)$
- Reflection over y-axis or $x = 0$ → only one prime symbol (typo)

20) F(a, b) is reflected over the x-axis. If a < 0 an b > 0, in what quadrant with (F') be located?
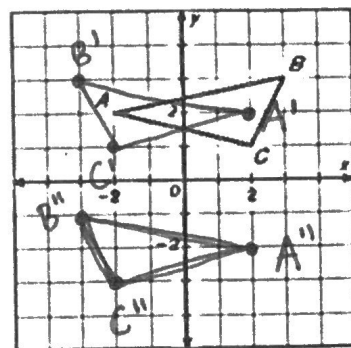
F

F'

quadrant 3

21) The function, $y = -2^x$, the passes through H(5, −32). If the graph is reflected over the y-axis, what are the coordinates of the image of H?

RULE: $(x, y) \rightarrow '(-x, y)$

$$H(5, -32) \rightarrow H'(-5, -32)$$

22) In the graph, the pre-image is first reflected so that A' is located at (2, 2). The new image is then translated to A''(2, −2). At what ordered pair would B'' be found following this same sequence of transformations?

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