Lesson 3.1 ~ Reflections

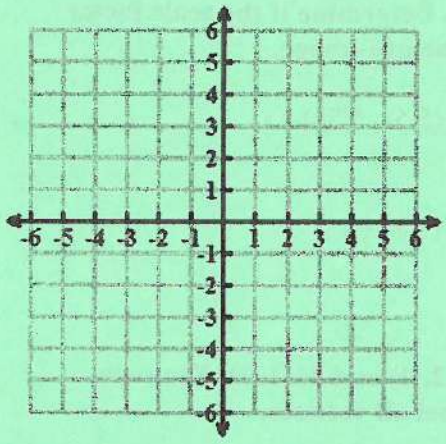
Name_____ Period_____ Date_____

1. The point (−1, 4) is reflected over the *y*-axis. What are the coordinates of the new point?

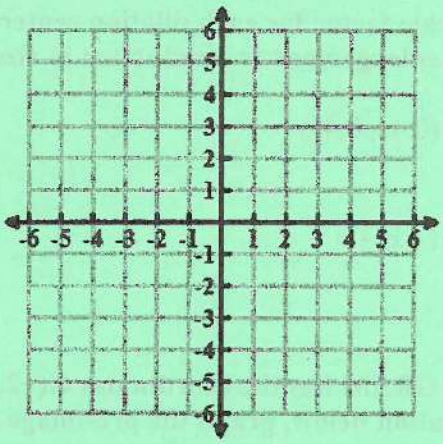
2. The point (−5, −9) is reflected over the *x*-axis. What are the coordinates of the new point?

Δ RST has the coordinates R(3, −5), S(2, −2) and T(5, −3). For each transformation below, graph the pre-image and image. Label all vertices.

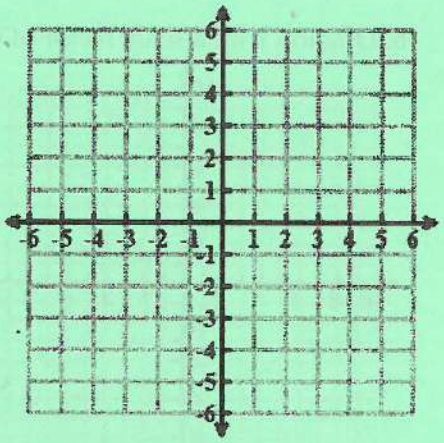
3. Reflection over the *x*-axis.



4. Reflection over the *y*-axis.



5. A rectangle has vertices at M(−2, 1), P(−2, 4), Q(−4, 4) and K(−4, 1).
   a. Graph and label the rectangle. This is the pre-image.
   b. Graph and label the rectangle after a reflection over the *y*-axis. List the coordinates of the vertices.



6. A pre-image has coordinates A(3, −5), B(3, 1) and C(−2, 0). The image has coordinates A'(3, 5), B'(3, −1) and C'(−2, 0). What type of reflection occurred? Explain how you know.

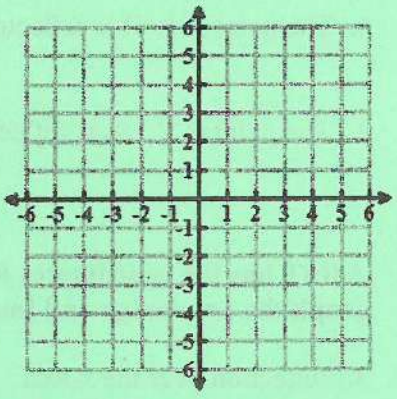
7. The point (7, 0) is reflected over the *x*-axis. What do you notice about the coordinates of the reflected point? Why is this?

Lesson 3.4 ~ Dilations

Name_____ Period_____ Date_____

1. ΔTRY has vertices at T(2, 6), R(−4, 0) and Y(−2, 5).

- **a.** Graph and label ΔTRY. This is the pre-image.
- **b.** Graph and label ΔT'R'Y' after a dilation with a scale factor of 0.5.
- **c.** Is this dilation a reduction or enlargement? Explain your reasoning.



Give the scale factor for each dilation centered at the origin. Determine if the scale factor creates an enlargement or a reduction in size compared to the pre-image.

2. $(x, y) \rightarrow (0.4x, 0.4y)$

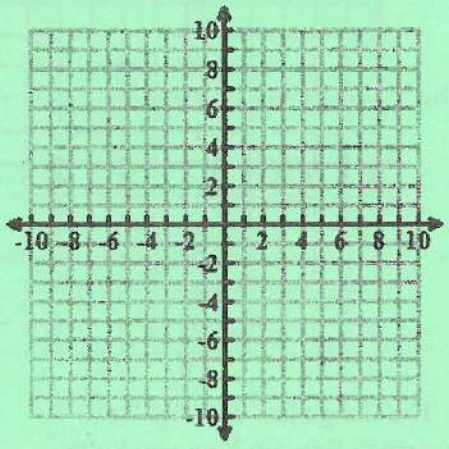
3. $(x, y) \rightarrow (5.5x, 5.5y)$

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

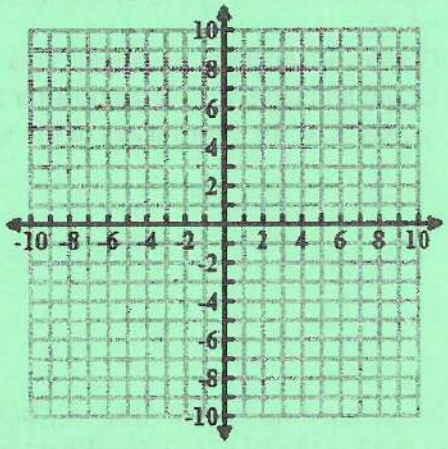
5. $(x, y) \rightarrow (\frac{4}{3}x, \frac{4}{3}y)$

Rectangle GRAM has the coordinates G(−2, 1), R(−2, 4), A(2, 4) and M(2, 1). For each transformation below, graph the pre-image and image. Label all vertices.

6. Dilation with a scale factor of 0.75.



7. $(x, y) \rightarrow (\frac{5}{2}x, \frac{5}{2}y)$



8. A pre-image has coordinates B(8, 4), U(6, 10) and N(5, −2). The image has coordinates B'(2, 1), U'(1.5, 2.5) and N'(1.25, −0.5). Write the transformation rule used to create this image.