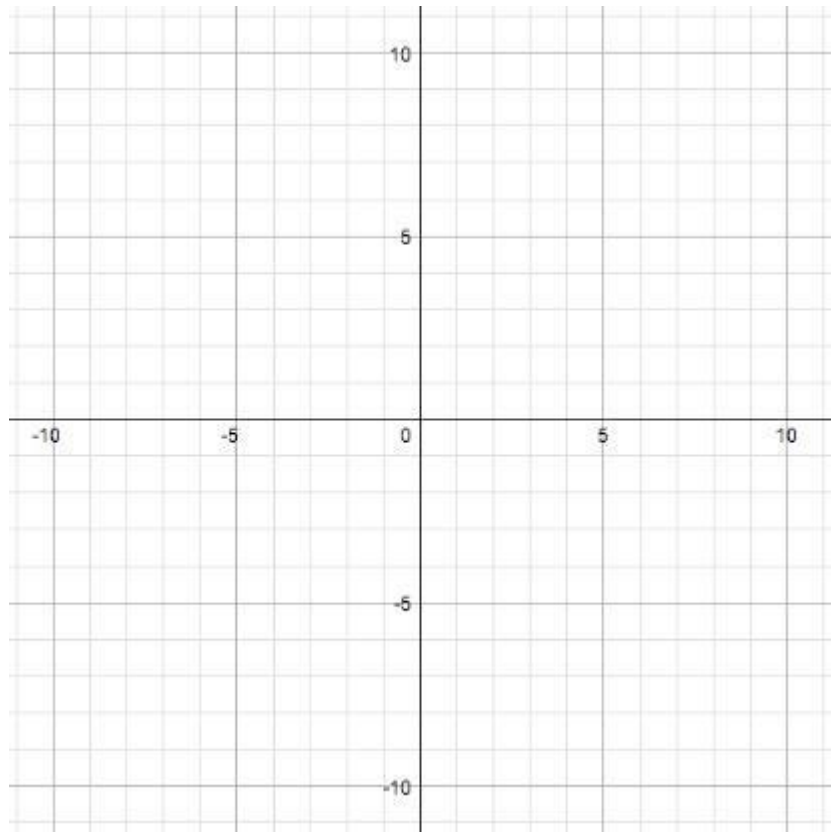**Verify that a line and its dilation are parallel by comparing the slopes.**

Practice Set B
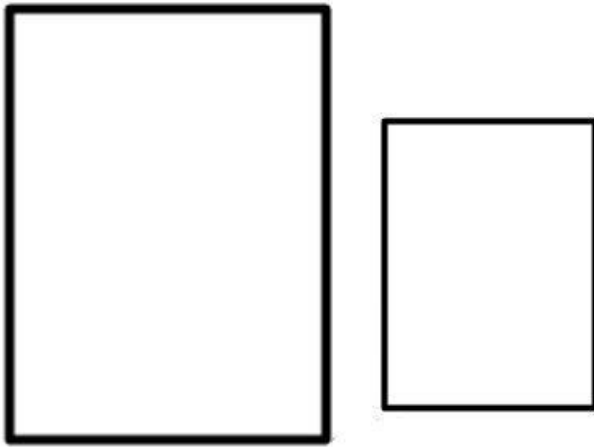
Name:

Date:

1. Line ℓ has the equation y = 2x - 2. Write the equation of the image of ℓ after a dilation with a scale factor of 1.5, centered at the point (0, 2). Write your answer in slope-intercept form. Justify your answer using algebraic and graphic representations.

2. Given the figures below, answer the following questions:

a) What transformations do you notice?

b) Without measuring, what do you know about the value of the scale factor? Explain how you came to this conclusion.

c) What is the center of dilation? Justify your answer.

Verify that a line and its dilation are parallel by comparing the slopes.

Practice Set B Answer Key

1. Line ℓ has the equation y = 2x - 2. Write the equation of the image of ℓ after a dilation with a scale factor of 1.5, centered at the point (0, 2). Write your answer in slope-intercept form. Justify your answer using algebraic and graphic representations.
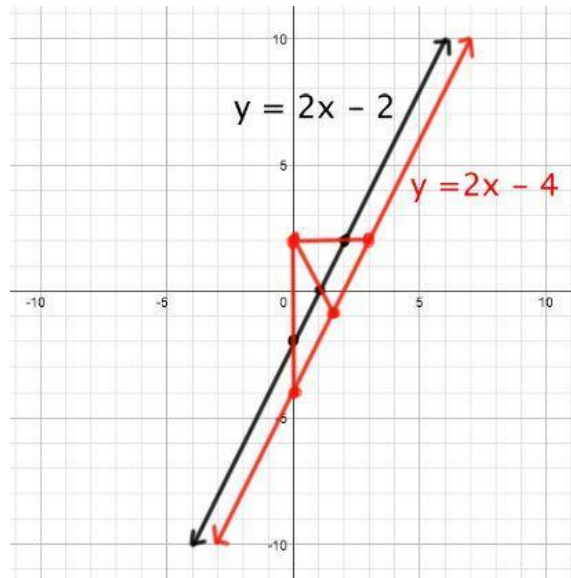

Students should graph the line y = 2x - 2. Then find two or more points on the line to dilate. Starting at the point (0, 2), draw line segments through the points taking them one and one-half times the distance between the origin and the original point (pre-image). The endpoints of these line segments are the dilated points (images). Finally, connect the new points (images) to create a straight line that is parallel to the original line. We see that the y-intercept is -4 and the slope is 2 so we can write the equation of the line y = 2x - 4. We also can see that the slope for both equations is 2 so our lines must be parallel because parallel lines have the same slope.

2. Given the figures below, answer the following questions:

a) What transformations do you notice?

b) Without measuring, what do you know about the value of the scale factor? Explain how you came to this conclusion.

c) What is the center of dilation? Justify your answer.
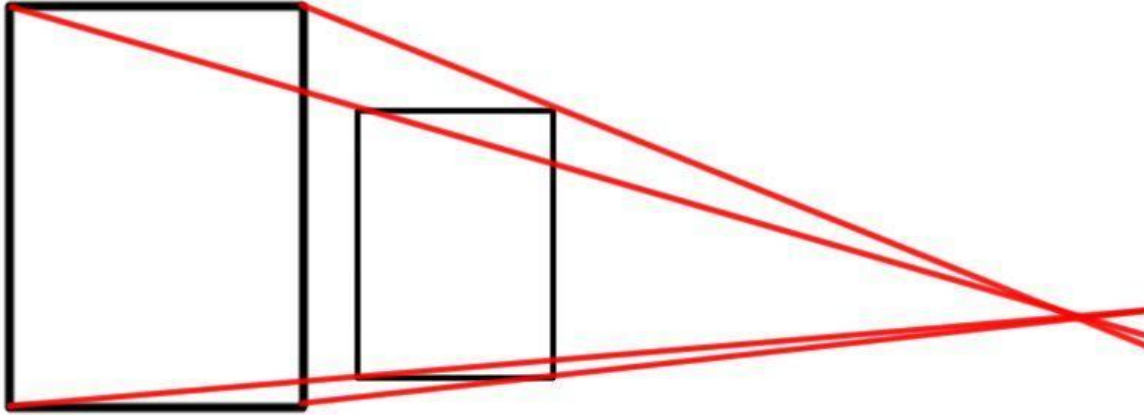
a) The figure is being dilated.

b) If students dilate from the large rectangle to the small rectangle, they should state that the value of the scale factor is less than one but greater than zero. They know this because the figure is being reduced. If students dilate from the small rectangle to the large rectangle, they should state that the value of the scale factor is greater than one because the figure is being enlarged.

c) The center of dilation remains the same regardless of scale factor. Students should construct line segments joining the corresponding vertices. Where those line segments intersect is the center of dilation.