A **_dilation_** changes the image size. Each side of the figure will change proportionally by a scale factor. The scale factor is what you multiply each side by.

When centered at the origin with scale factor c, the dilation formula is as follows:

$$(x, y) \rightarrow (cx, cy)$$

If c > 1 it is an **enlargement**

If 0 < c < 1 it is a **reduction**


Example 1: The quadrilateral J'K'L'M' is a dilation image of quadrilateral JKLM. Describe the dilation.

    A. a reduction, with center (3, –2) and scale
        factor ¼.

    B. a reduction, with center (0, 0) and scale
        factor ½ .

    C. an enlargement, with center (2, 0) and scale
        factor 2

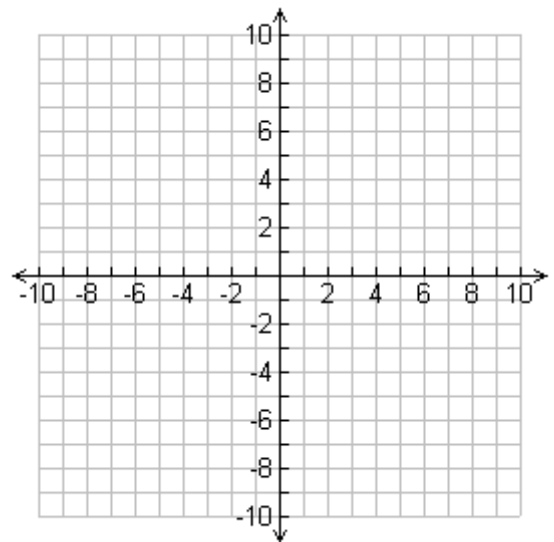   D. an enlargement, with center (0, 0) and scale
        factor 3
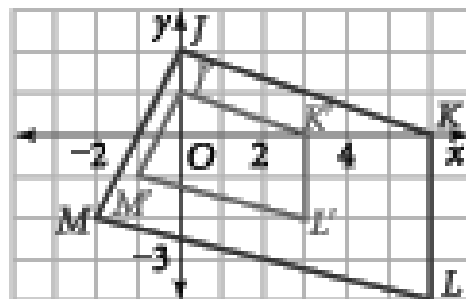
Example 2: The height of a tractor-trailer truck is 2.7 meters and the length is 9 meters. The scale factor for a model of the truck is 1/54. Find the height and length of the model to the nearest *centimeter*.

Example 3: Plot and label the coordinates of the triangle A(-1, 1), B(3, 2), and C(2, -1). Use multiplication to find the image of the triangle under a dilation with center (0, 0) and scale factor 2.
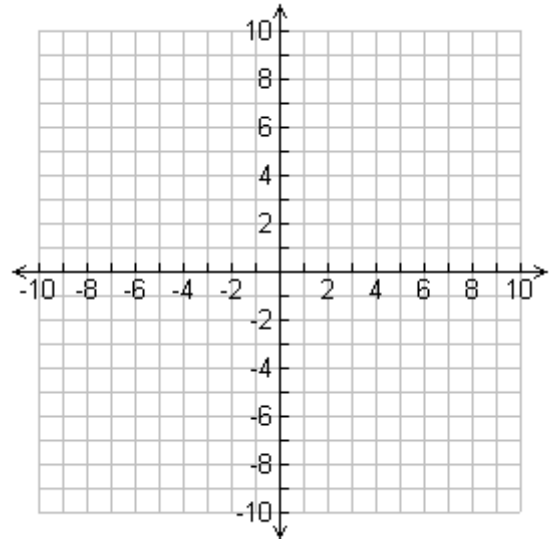
Example 4: Plot and label the coordinates of the triangle X(-10, 6), Y(8, 4), and Z(-2, -4). Use multiplication to find the image of the triangle under a dilation with center (0, 0) and scale factor 1/2.

Homework: Day 13 Worksheet