

Transformations

A transformation is a general term for four specific ways to manipulate the shape of a point, a line, or shape.

Types of transformations

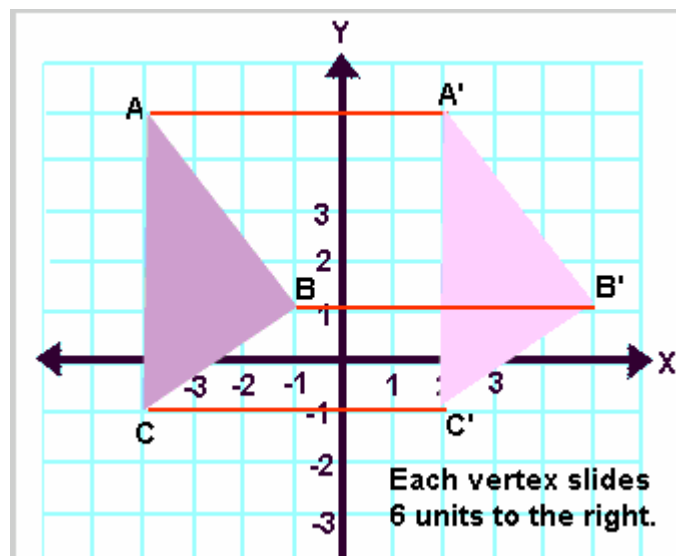
Translation "slides" an object a fixed distance in a given direction.

Reflection is simply a flip

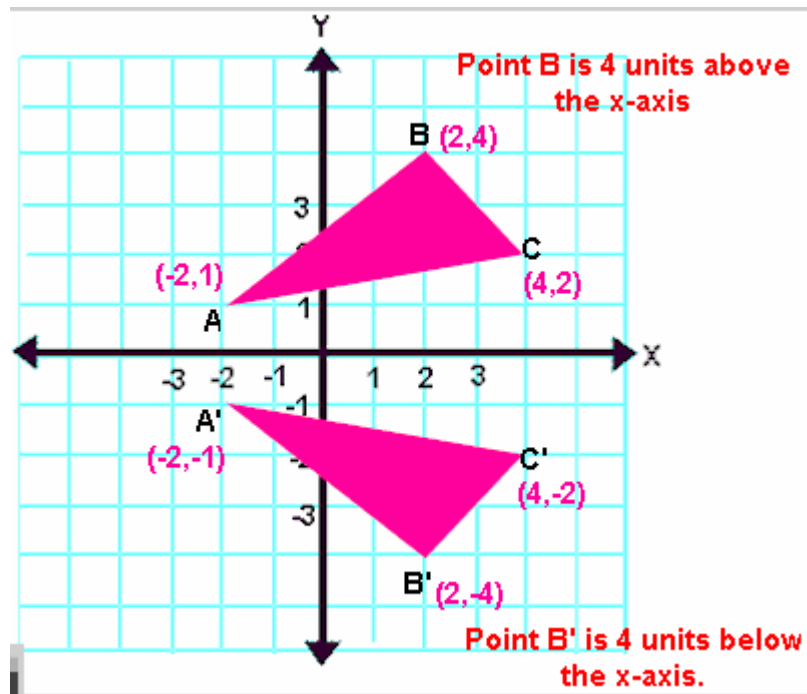
Rotation turns a figure through an angle about a fixed point

Dilation "shrinks" or "stretches" a figure

A translation "slides" an object a fixed distance in a given direction. The original object and its translation have the same shape and size, and they face in the same direction. In the example below, notice how each vertex moves the same distance

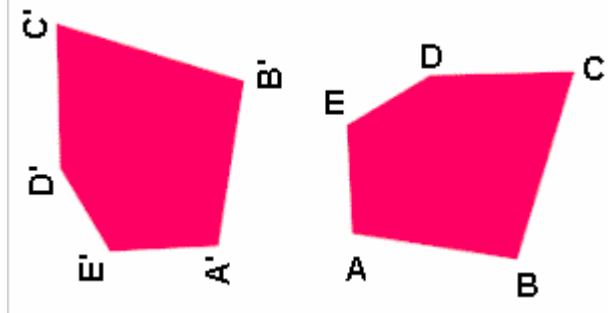


Reflection Remember that a reflection is simply a flip. Under a reflection, the figure does not change size. It is simply flipped over the line of reflection.



A rotation turns a figure through an angle about a fixed point called the center. The center of rotation is assumed to be the origin. A positive angle of rotation turns the figure counterclockwise, and a negative angle of rotation turns the figure in a clockwise direction. The figure does not change size.

This rotation is counterclockwise 90 degrees.



Dilation includes the scale factor and the center of the dilation. A dilation "shrinks" or "stretches" a figure. **Example** Draw the dilation image of triangle ABC with the center of dilation at the origin and a scale factor of 2. EVERY coordinate of the original triangle has been multiplied by the scale factor (x2).

