Results of two or more transformations :

There are four basic types of transformations. They are translations, reflections, rotations and dilations.

Translations
A translation slides a figure in any direction. A translated figure is congruent to the original figure.

Reflections
A reflection flips a figure over a line. The line is called the line of reflection. A reflected figure is congruent to the original figure.

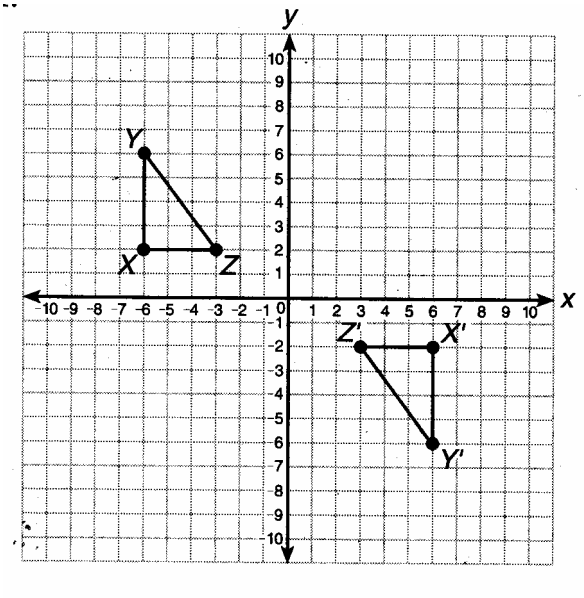
Rotations
A rotation turns a figure around a point. The point is called the center of rotation. You will use the origin as the center of rotation in most situations. A figure can be rotated in either a clockwise or a counterclockwise direction. A rotated figure is congruent to the original figure.

Dilations
A dilation either enlarges or reduces a figure. The figure is enlarged or reduced from a point called the center of dilation. The coordinates of the vertices of the figure are multiplied by a positive number called the scale factor. If the scale factor is less than 1, the dilated figure will be a reduction of the original figure. If the scale factor is greater than 1, the dilated figure will be an enlargement of the original figure. A dilated figure will be similar, but not congruent to the original figure. The side lengths of a dilated figure are changed by the scale factor. The area of a dilated figure is changed by the scale factor squared.

Multiple transformations
More than one transformation can be performed on a figure.

Finding the new coordinates of a point after a transformation :

C.



When a figure is transformed to a different position, it creates new points also. Take for example problem C from above. The original figure was triangle XYZ. The original points were $X(-6,2)$, $Y(-6,6)$ and $Z(-3,2)$. Once it is transformed, a new triangle is formed namely X'Y'Z'. Notice the tick mark after each letter. This also created new points $X'(6,-2)$, $Y'(6,-6)$ and $Z'(3,-2)$.