# Transformations GeoGebra Guide

Make sure the Grid, Axis, Algebra View, and Input are selected under View Menu

**Create a Polygon**

Click on Polygon icon and select triangle.  Click on three points and close the polygon by clicking on the original point to create a triangle.

**Create a Vector**

To create a vector, make two points on your grid in the length and direction of your desired vector.  In Input bar type in "Vector[first point, second point]" and the vector will be created and listed under your Dependent Objects folder.

**Create a Translation**

In Input bar type in "Translate[Polygon[first point, second point, third point], vector name]."  You will need to add the actual names of the points in your polygon along with the actual name of your vector.

**Rotate Around the Origin**

 In Input bar type in "Rotate[Polygon[first point, second point, third point], angle phi]."  You will need to add the actual names of the points in your polygon along with the degrees you wish it to rotate.

**Rotate around a Given Point**

In Input bar type in "Rotate[Polygon[first point, second point, third point], angle phi, selected point]."  You will need to add the actual names of the points in your polygon along with the degrees you wish it to rotate and the point you wish it to rotate around.  (*You will need to create a point to rotate around.*)

**Create a Dilation**

In Input bar type in "Dilate[Polygon[first point, second point, third point], dilation factor, selected point]."  You will need to add the actual names of the points in your polygon along with the factor you which to dilate the polygon and the point from which you would like the dilation to start.

**Create a Mirrored Image around a Point**

In Input bar type in "Mirror[Polygon[first point, second point, third point], selected point]."  You will need to add the actual names of the points in your polygon along with the point you wish to mirror the polygon.  (*You will need to create a point to rotate around.*)

**Create a Mirrored Image around a Line**

In Input bar type in "Mirror[Polygon[first point, second point, third point], selected line]."  You will need to add the actual names of the points in your polygon along with the line you wish to mirror the polygon.  (*You will need to create a line to rotate around.*)

**Export Transformation as Image**

Go to File and select Export.  Select Graphics View as Picture (png, eps)…  Choose Portable Network Graphics (png) and select save.  Find the location where you wish to save the image.  Name the image and click on Save.