Lab Exercise 6: 2D Composite Transformations and Windowing in C++ using OpenGL

a) To compute the composite transformation matrix for any 2 transformations given as input by the user and applying it on the object.

   The transformation can be any combination of the following.

1) Translation

2) Rotation

3) Scaling

4) Reflection

5) Shearing

Display the original and the transformed object.

Calculate the final transformation matrix by multiplying the two individual transformation matrices and then apply it to the object.

Note: Use Homogeneous coordinate representations and matrix multiplication to perform transformations. Divide the output window into four quadrants. (Use LINES primitive to draw x and y axis)

b) Create a window with any 2D object and a different sized viewport. Apply window to viewport transformation on the object. Display both window and viewport.