# 6050 CG Assignment 2 Report

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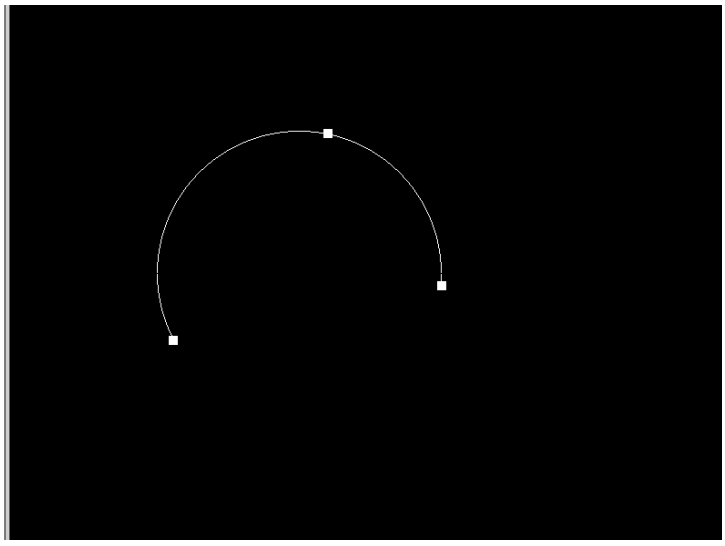
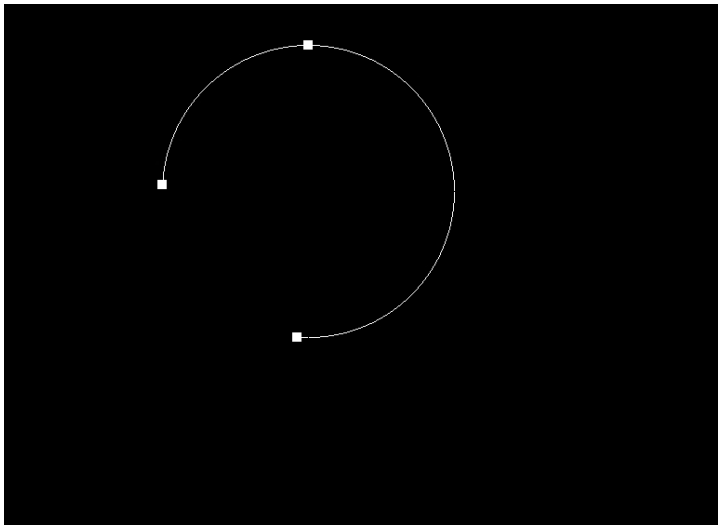
1. **<u>Arc drawing</u>**:

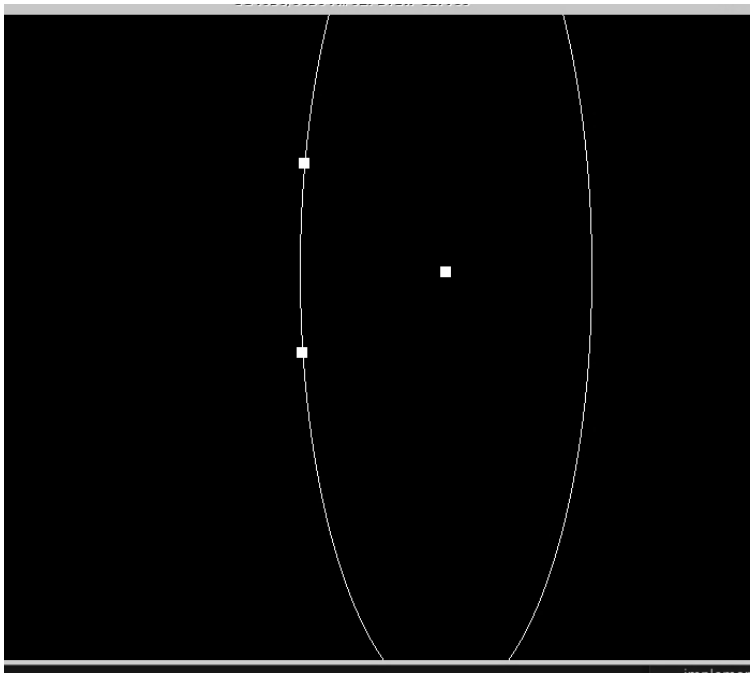
   The Arc is computed in following steps:

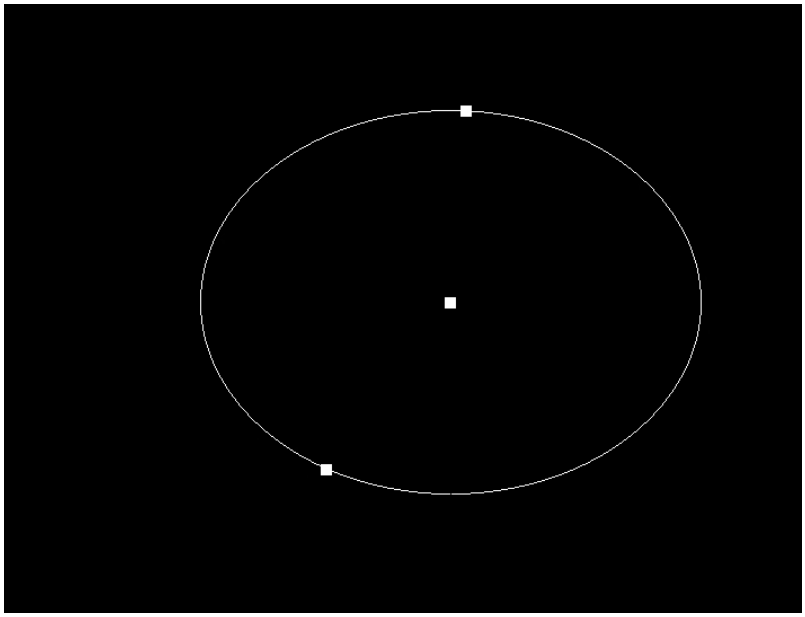
   - Compute the center of the circle formed by the 3 points.
   - Compute each point on the circle,
   - Check whether the point lies on the arc by putting them in the line expression formed by first and last points of the arc (f(x), say).
     - If the signs of f(currentPoint) and f(3rd point on the arc) match, then it is said to be on the arc.
     - Else, the point doesn't lie on the arc.

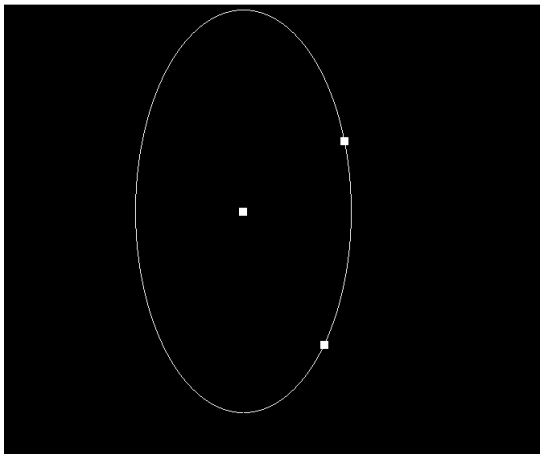




2. **Ellipse drawing**: Steps followed to compute Ellipse:
    - The two radii (Rx, Ry) are computed
    - For 1st region, a decision parameter is calculated
    - at every step X is incremented and corresponding Y value is calculated based on the decision parameter
    - the symmetrical points on the other 3 Quadrants are also plotted for all points in Region 1
    - The same is followed for the 2nd region

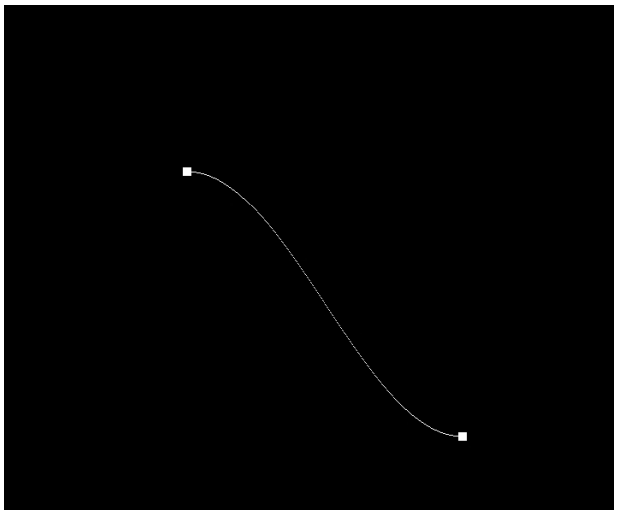


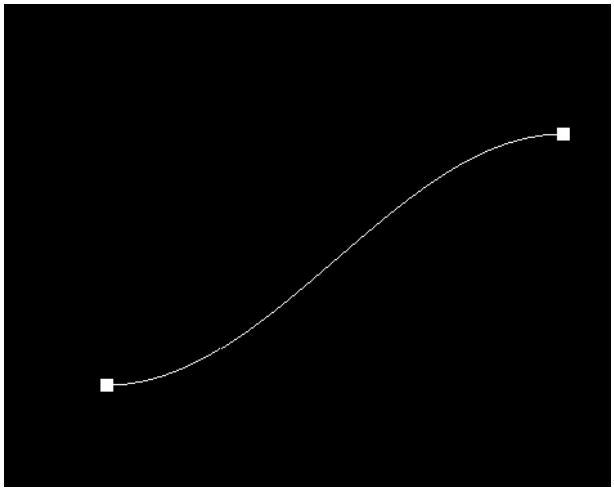




3. **<u>Sin wave</u>**:

   **Note**:The taylor series is expanded until there is a minimum value reached for a term (1e-5) in my implementation.
   Further terms of taylor expansions were not computed since they don't add significant value to change the pixel coordinate values.





4. **<u>Quintic Bezier Curve</u>**:

**Assumption**: Since the pixel count is not given, I have assumed that we will be plotting 2000 Bezier points within the given control points as there are 800x600 pixels to plot, the graph will not usually show gaps in my case . This can be easily edited in the code, by editing the variable "***totalPixels***".