Q1. Write a code fragment to draw the below figures:

a) **Use circle function to draw Figure 1, the radius of the largest circle is 150 pixels.**

b) **Use line function Figure 2.**

(a)

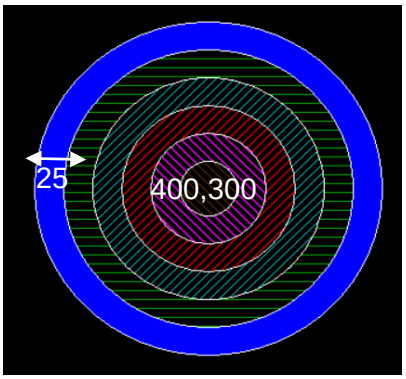


Figure 1

(b)

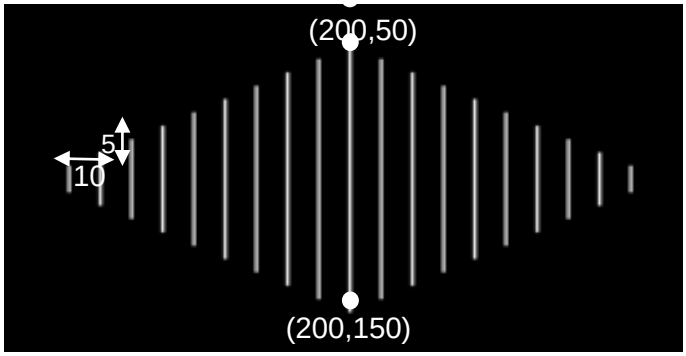
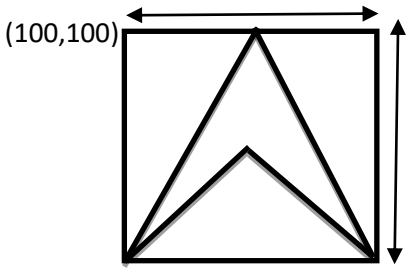


Figure 2

Q2. Write a code fragment to draw the following figure using linerel function.

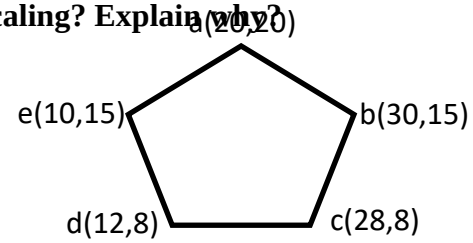


Q3. Consider the line from (6,7) to (13,10), use Digital Differential Analyzer (DDA) algorithm to find the intermediate positions.

Q4. Use Bresenham's line drawing algorithm to find the intermediate positions of a line starting from (3,0) to (11,9).

Q 5. Given a circle radius r=7, demonstrate the Midpoint circle drawing algorithm by determining the positions of the second octant which starts from x=0 to x=y.

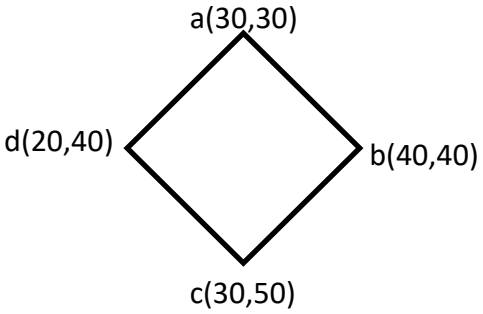
Q6. Write a code fragment to scale the following Pentagon. The vertices are a(20,20), b(30,15),c(28,8), d(12,8), and e(10,15). The Scaling factors are Sx=2, and Sy=3, does it homogenous or heterogeneous scaling? Explain why?



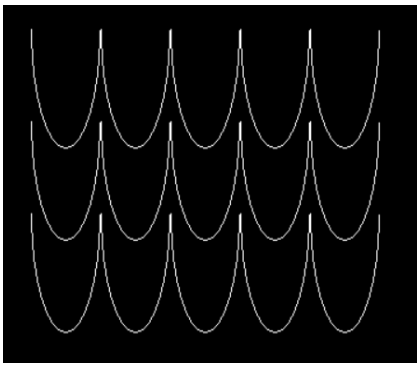
Q7. Fill in the blanks with correct words:

1. Each pixel on a screen can be accessed by _____points.
2. Bresenham's line drawing algorithm is_____and_____than DDA algorithm.
3. The polar algorithm tackles the problem of _____ between plotted pixels of a circle.
4. In the uniform scaling, the scaling factors of Sx and Sy are_____.
5. Translation is the process of repositioning an object along _____.
6. There are two secondary types of transformation which are_____and_____.

Q8. What are the new vertices after applying all five types of shearing on the following polygon?



Q9) Write a code fragment to draw the following figure, **x-radius** and y-**radius** are 30 and 90, respectively.



Q10) Use Cohen-Sutherland algorithm to clip the following lines.