MID – POINT ELLIPSE ALGORITHM

Mid-Point Elliplse (X_C, Y_C, R_X, R_Y):

Description: Here X_C and Y_C denote the x – coordinate and y – coordinate of the center of the ellipse and R_X and R_Y denote the x – radius and y – radius respectively.

```
1.   Set RXSq = RX * RX
2.   Set RYSq = RY * RY
3.   Set X = 0 and Y = RY
4.   Set PX = 0 and PY = 2 * RXSq * Y
5.   Call Draw Elliplse(XC, YC, X, Y)
6.   Set P = RYSq – (RXSq * RY) + (0.25 * RXSq)          [Region 1]
7.   Repeat While (PX < PY)
8.        Set X = X + 1
9.        PX = PX + 2 * RYSq
10.       If (P < 0) Then
11.            Set P = P + RYSq + PX
12.       Else
13.            Set Y = Y – 1
14.            Set PY = PY – 2 * RXSq
15.            Set P = P + RYSq + PX – PY
          [End of If]
16.       Call Draw Elliplse(XC, YC, X, Y)
     [End of Step 7 While]
17.  Set P = RYSq*(X + 0.5)^2+RXSq*(Y – 1)^2–RXSq*RYSq     [Region 2]
18.  Repeat While (Y > 0)
19.       Set Y = Y – 1
20.       Set PY = PY – 2 * RXSq
21.       If (P > 0) Then
22.            Set P = P + RXSq – PY
23.       Else
24.            Set X = X + 1
25.            Set PX + 2 * RYSq
26.            Set P = P + RXSq – PY + PX
```

```
          [End of If]
27.       Call Draw Ellipse(Xc, Yc, X, Y)
     [End of Step 18 While]
28.  Exit
```

Draw Ellipse (XC, YC, X, Y):

```
1.   Call PutPixel(Xc + X, Yc + Y)
2.   Call PutPixel(Xc - X, Yc + Y)
3.   Call PutPixel(Xc + X, Yc - Y)
4.   Call PutPixel(Xc - X, Yc - Y)
5.   Exit
```