

## **Midpoint Circle Drawing Algorithm :**

Step 1: Start .

Step 2: Input the radius  $r$  of the circle and the center coordinates  $(x_c, y_c)$ .

Step 3: Initialize  $x = 0$  and  $y = r$ .

Step 4: Initialize the decision parameter  $p = 1 - r$ .

Step 5: Plot the initial point  $(x, y)$  and its 8 symmetric points using circle symmetry.

Step 6: Repeat the following steps while  $x < y$ :

Step 7: Increment  $x$  by 1.

Step 8: If the decision parameter  $p < 0$ , then update  $p = p + 2x + 1$ .

Step 9: Else, decrement  $y$  by 1 and update  $p = p + 2(x - y) + 1$ .

Step 10: Plot the new point  $(x, y)$  and its 8 symmetric points.

Step 11: Continue the process until  $x \geq y$ .

Step 12: Stop.