

Midpoint Circle Drawing Algorithm

Step 1: Start

Step 2: Declare variables x_o , y_o , p , r , x_c , y_c

Step 3: Read the value r , x_c , y_c

Step 4: Initialize $x_o = 0$, $y_o = 0$

Step 5: Calculate the initial decision parameter

$$P_o = \frac{5}{4} - r$$

Step 6: Repeat until $y \geq x$

a. If $P_k < 0$,

$$x_{k+1} = x_k + 1$$

$$y_{k+1} = y_k$$

$$P_k = P_k + 2x_{k+1} + 1$$

Else if $P_k \geq 0$

$$x_{k+1} = x_k + 1$$

$$y_{k+1} = y_k - 1$$

$$P_k = P_k + 2x_{k+1} + 1 - 2y_{k+1}$$

b. Determine the symmetry in other 7 octants.

c. $x = x + x_c$

$$y = y + y_c$$

Step 7: Stop