Algorithm: Midpoint Circle Drawing Algorithm

Input:

- Radius of the circle `r`.
- Center of the circle `(xc, yc)`.

Output:

- Set of points that form a circle.

Algorithm Steps

1. **Start**
2. Read the radius `r` and center coordinates `(xc, yc)`.
3. Initialize:
    - `x = 0`
    - `y = r`
    - Decision parameter `p = 1 - r`
4. Plot the initial eight symmetric points of the circle using the center `(xc, yc)`.
5. **Repeat** the following steps while `x < y`:

    1. Increment `x` by 1.
    2. If `p < 0`:
        - Update decision parameter
          `p = p + 2x + 1`
    3. Else:
        - Decrement `y` by 1
        - Update decision parameter
          `p = p + 2(x - y) + 1`
    4. Plot the eight symmetric points corresponding to `(x, y)`.

6. Continue the process until **x ≥ y**.
7. **Stop**

The Midpoint Circle Algorithm is used to determine the points needed to draw a circle by calculating the next pixel position using a decision parameter. It takes advantage of the symmetry of a circle to generate points for all eight octants, reducing computation time.