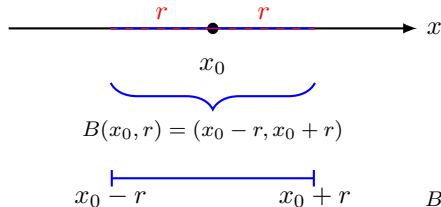
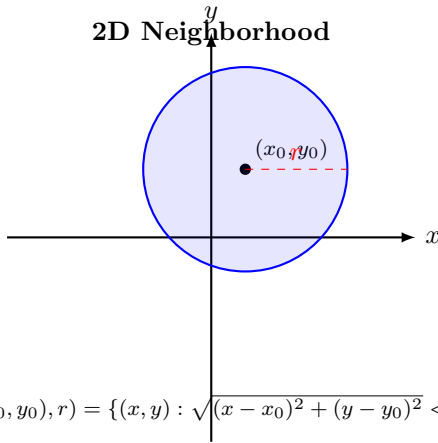


1D Neighborhood



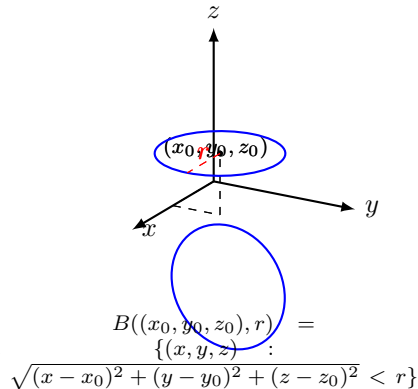
$$B(x_0, r) = (x_0 - r, x_0 + r)$$

2D Neighborhood



$$B((x_0, y_0), r) = \{(x, y) : \sqrt{(x - x_0)^2 + (y - y_0)^2} < r\}$$

3D Neighborhood



$$B((x_0, y_0, z_0), r) = \{(x, y, z) : \sqrt{(x - x_0)^2 + (y - y_0)^2 + (z - z_0)^2} < r\}$$

Local Neighborhoods in Different Dimensions