

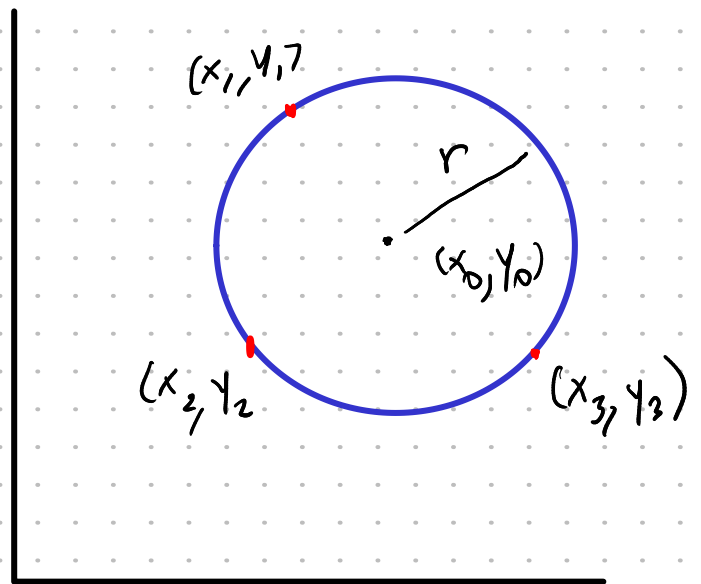
Datos:

$$(x_1, y_1), (x_2, y_2), (x_3, y_3)$$

Pregunta

$$(x_0, y_0), r$$

$$(x - x_0)^2 + (y - y_0)^2 = r^2$$



$$P_1: (x_1 - x_0)^2 + (y_1 - y_0)^2 = r^2$$

$$P_2: (x_2 - x_0)^2 + (y_2 - y_0)^2 = r^2$$

$$P_3: (x_3 - x_0)^2 + (y_3 - y_0)^2 = r^2$$

$P_1:$

$$(x_1, y_1) = (1, 0)$$

$$(x_1 - x_0)^2 + (y_1 - y_0)^2 = r^2$$

$$x_1^2 - 2x_1x_0 + x_0^2 + y_1^2 - 2y_1y_0 + y_0^2 = r^2$$

$$1 - 2x_0 + x_0^2 + y_0^2 = r^2$$

$$x_1(-2x_0) + y_1(-2y_0) + (x_0^2 + y_0^2 - r^2) = -x_1^2 - y_1^2$$

$$x_1 A + y_1 B + C = -x_1^2 - y_1^2$$

$$x_2 A + y_2 B + C = -x_2^2 - y_2^2$$

$$x_3 A + y_3 B + C = -x_3^2 - y_3^2$$

A, B, C Result to

$$A = -2x_0 \rightarrow x_0 = -\frac{A}{2}$$

$$B = -2y_0 \rightarrow y_0 = -\frac{B}{2}$$

$$C = x_0^2 + y_0^2 - r^2$$

$$r = \sqrt{C - x_0^2 - y_0^2}$$

$$r = \sqrt{C - \left(\frac{A}{2}\right)^2 - \left(\frac{B}{2}\right)^2}$$

$$x_1 A + y_1 B + C =$$

$$x_2 A + y_2 B + C =$$

$$x_3 A + y_3 B + C =$$

$$\underbrace{\begin{bmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{bmatrix}}_A \underbrace{\begin{bmatrix} A \\ B \\ C \end{bmatrix}}_B = \underbrace{\begin{bmatrix} -x_1^2 - y_1^2 \\ -x_2^2 - y_2^2 \\ -x_3^2 - y_3^2 \end{bmatrix}}_B$$