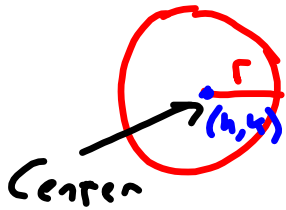


10.2 Circles



$$(x-h)^2 + (y-k)^2 = r^2$$

r = radius
 (h, k) = center of circle

Ex Center $(-5, 4)$
 $r = 4$

$$(x+5)^2 + (y-4)^2 = 16$$

Gen. form of a circle

$$x^2 + y^2 + Dx + Ey + F = 0$$

$$(x+5)^2 + (y-4)^2 = 16$$

$$x^2 + 10x + 25 + (y-4)(y-4) = 16$$

$$+ 5^2 - 4y - 4y + 16 = 16$$

$$x^2 + 10x + 25 + y^2 - 8y + 16 = 16$$

$$x^2 + y^2 + 10x - 8y + 25 = 0$$

Coeff. have to be 1

Gen. form \rightarrow Standard form

Ex #23 $x^2 + y^2 - 4x + 12y + 30 = 0$

$$x^2 - 4x + \left(\frac{-4}{2}\right)^2 + y^2 + 12y + \left(\frac{12}{2}\right)^2 = -30 + 4 + 36$$

$$(x-2)^2 + (y+6)^2 = 10$$