

Warm-up 2: Circles

$$x^2 + y^2 - 4x + 4y - 1 = 0$$

$$x^2 - 4x + \underline{4} + y^2 + 4y + \underline{4} = 1 + \underline{4} + \underline{4}$$

$$\left(-\frac{4}{2}\right)^2 = (-2)^2 = 4 \quad \left(\frac{4}{2}\right)^2 = (2)^2 = 4$$

$$(x-2)^2 + (y+2)^2 = 9$$

$$\text{center} = \underline{(2, -2)}$$

$$\text{radius} = \underline{3}$$

