

Please do not write in the margins of the page!

For each equation of a circle, put the equation into the form $(x - H)^2 + (y - K)^2 = R^2$ by completing squares, and then give the center and radius:

$$\begin{aligned} 1) \quad & x^2 - 6x + y^2 + 4y - 4 = 0 \\ & x^2 - 6x + y^2 + 4y = 4 \\ & x^2 - 6x + 9 + y^2 + 4y + 4 = 4 + 9 + 4 \\ & (x - 3)^2 + (y + 2)^2 = 17 \end{aligned}$$

The center is $(3, -2)$ and the radius is $\sqrt{13}$

$$\begin{aligned} 2) \quad & x^2 + 2x + y^2 - 8 = 0 \\ & x^2 + 2x + y^2 = 8 \\ & x^2 + 2x + 1 + y^2 = 8 + 1 \\ & (x + 1)^2 + y^2 = 9 \end{aligned}$$

The center is $(-1, 0)$ and the radius is 3
