

Precalculus §9.2: Standard Form of the Equation of a Circle

Rewrite each of the following equations into standard form. Identify the center and radius for each equation.

1. $2x^2 + 2y^2 - 16 = 0$

$$\frac{2x^2 + 2y^2}{2} = \frac{16}{2}$$

$$x^2 + y^2 = 8$$

$$\text{center} = (0, 0)$$

$$r^2 = 8$$

$$r = \sqrt{8} = 2\sqrt{2}$$

2. $3x^2 + 3y^2 - 6x + 6y - 27 = 0$

$$\frac{3x^2 - 6x + 3y^2 + 6y}{3} = \frac{27}{3}$$

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

$$(x-1)^2 + (y+1)^2 = 11$$

$$\text{center} = (1, -1)$$

$$r^2 = 11$$

$$r = \sqrt{11}$$

3. $4x^2 + 4y^2 - 6x + 4y - 10 = 0$

4. $9x^2 + 12x + 9y^2 - 8y - 13 = 0$