

Equation of Circle

1. Rewrite the following equations in the form $(x - a)^2 + (y - b)^2 = r^2$.

a) $x^2 + 4x + 4 + y^2 - 6x + 9 = 36$

b) $x^2 - 10x + 25 + y^2 + 14y + 49 = 4$

2. Identify the center and radius for each of the following circles.

a) $x^2 - 20x + y^2 + 6y = 35$

b) $x^2 - 3x + y^2 - 5y = \frac{19}{2}$

3. Could the circle with equation $x^2 - 6x + y^2 - 7 = 0$ have a radius of 4? Why or why not?

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Equation of Circle

1. Rewrite the following equations in the form $(x - a)^2 + (y - b)^2 = r^2$.

a) $x^2 + 4x + 4 + y^2 - 6y + 9 = 36$

$$(x + 2)^2 + (y - 3)^2 = 36$$

b) $x^2 - 10x + 25 + y^2 + 14y + 49 = 4$

$$(x - 5)^2 + (y + 7)^2 = 4$$

2. Identify the center and radius for each of the following circles.

a) $x^2 - 20x + y^2 + 6y = 35$

$$(x - 10)^2 + (y + 3)^2 = 144$$

The center is $(10, -3)$, and the radius is 12.

b) $x^2 - 3x + y^2 - 5y = \frac{19}{2}$

$$\left(x - \frac{3}{2}\right)^2 + \left(y - \frac{5}{2}\right)^2 = 18$$

The center is $\left(\frac{3}{2}, \frac{5}{2}\right)$, and the radius is $\sqrt{18} = 3\sqrt{2}$.

3. Could the circle with equation $x^2 - 6x + y^2 - 7 = 0$ have a radius of 4? Why or why not?

$$(x - 3)^2 + y^2 = 16$$

Yes, the radius is 4.

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