

Find the equation for circle with center (1,3) that passes through (4, -1).

Solution:

The equation of the circle with center (1,3) and radius R:

$$(x - 1)^2 + (y - 3)^2 = R^2$$

Find value of R from the condition that point (4, -1) lies on the circle.

$$(4 - 1)^2 + (-1 - 3)^2 = R^2$$

$$R^2 = 9 + 16$$

$$R = 5$$

So the equation is:

$$(x - 1)^2 + (y - 3)^2 = 25$$

Answer: $(x - 1)^2 + (y - 3)^2 = 25$