Answer on Question #74436 - Math – Algebra

Question.

Find the standard form of the equation of circle whose center is at (4, 3) which passes through the origin. Draw the circle.

Solution.

The standard form of the equation of circle:

$$(x - x_0)^2 + (y - y_0)^2 = r^2$$

where (x_0, y_0) is the center of the circle and r is the radius of the circle.

Given that the circle passes through the origin, its radius must be equal to distance between its center and the origin. Distance between points (4, 3) and (0, 0):

$$r = \sqrt{(4 - 0)^2 + (3 - 0)^2} = \sqrt{16 + 9} = \sqrt{25} = 5$$

Answer: $(x - 4)^2 + (y - 3)^2 = 5^2$