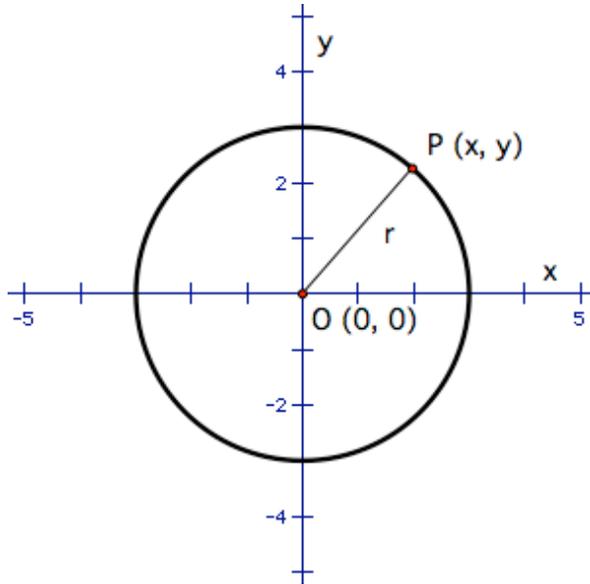


Equation of a Circle with Centre (0, 0)

Developing the equation...

Given the following circle with its centre at the origin (0, 0) and a radius of r .

If $P(x, y)$ is any point on the circle:



The radius, r , is the line segment OP.

To find the length of r , what formula can we apply?

So, the equation of a circle having a centre (0, 0) is:

or

Example 1

Write an equation for the circle with centre (0, 0) and radius of 3.

OK... any circle with centre (0, 0) has the equation:

Substitute $r = 3$...

\therefore the equation of a circle with centre (0, 0) and radius 3 is:

Example 2

Find an equation for the circle that is centred at the origin and passes through the point $(4, 3)$.

OK... any circle at the origin, that is, having a centre at $(0, 0)$ has the equation:

Substitute the...

Now, substitute again, this time...

\therefore the equation for the circle centred at $(0, 0)$ and passing through $(4, 3)$ is:

Example 3

Use algebra to determine if the point $(-3, 5)$ is inside the circle described in example 2.

OK, the equation of the circle from the last example is:

Let's pretend $(-3, 5)$ is a point on the circumference of another circle.

If that's so, let's find the radius of that other circle...

