Name: _____ 5-a-day Further Maths

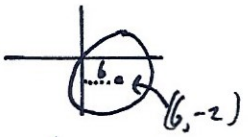
7th February

Corbettmaths

A circle has equation
$(x - 6)^2 + (y + 2)^2 = 40$ Centre $(6, -2)$

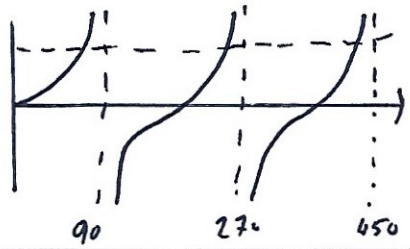
State, with a reason, whether this circle intersects the y-axis

$r = \sqrt{40}$



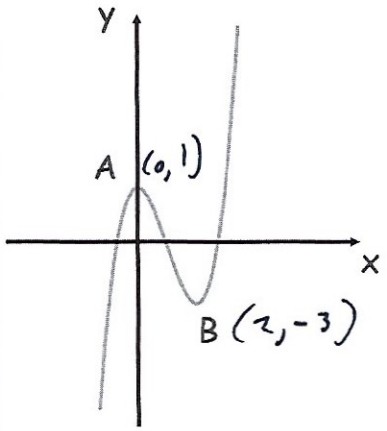
As the radius, $\sqrt{40}$, is greater than 6, the circle will intersect twice with the y-axis.

How many solutions of $tan x = k$, where k > 0 , are between $0°$ and $450°$?



3

A curve has equation
$y = x^3 - 3x^2 + 1$



Work out the coordinates of the stationary points, A and B. $\frac{dy}{dx} = 0$

$\frac{dy}{dx} = 3x^2 - 6x$

$3x^2 - 6x = 0$

$3x(x - 2) = 0$

$x = 0$ or $x = 2$

A(0, 1) B (2, -3)

Solve $\frac{3}{x^2} - \frac{5}{x} - 12 = 0$

$3 - 5x - 12x^2 = 0$

$12x^2 + 5x - 3 = 0$

$(4x + 3)(3x - 1) = 0$

$x = -\frac{3}{4}$ or $x = \frac{1}{3}$

© Corbettmaths 2019