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Interact, engage and perform

Parametric Equations for a Circle (Example)

A curve has parametric equations $x = \sin t - 2$, $y = \cos t + 1$ $t \in \mathbb{R}$

Show that the cartesian equation of the curve is a circle and then sketch the curve

Since $x = \sin t - 2$

$\therefore \sin t = x + 2$

and $y = \cos t + 1$

$\therefore \cos t = y - 1$

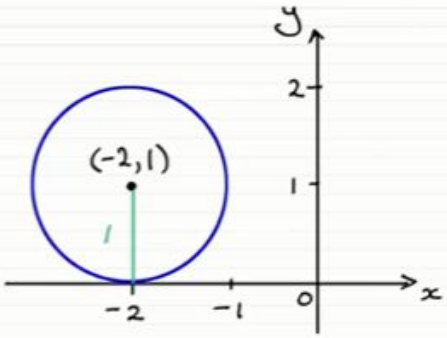
But $\sin^2 t + \cos^2 t \equiv 1$

$\therefore (x+2)^2 + (y-1)^2 = 1$

$\therefore$ centre $(-2, 1)$

radius $= 1$

Remember: A circle centre (x_1, y_1) radius r has the form $(x - x_1)^2 + (y - y_1)^2 = r^2$



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