24th January

How many points of intersection does the circle $x^2 + y^2 = 8$ have with the line x + y = 4? $y = 4 - \chi$

$$x^{2} + (4-x)^{2} = 8$$

 $x^{2} + 16 - 8x + x^{2} = 8$
 $7x^{2} - 8x + 8 = 0$

 $\chi^2 - 4\chi + 4 = 0$ Corbettmaths $(\chi - \chi)(\chi - \chi) = 0$ $\chi = \chi$ $\therefore \text{ only } | \text{ point of intersection}$

Work out the rate of change of y with respect to x at the point on the curve

$$y = x^{2}(x - 4) \text{ where } x = 3$$

$$y = x^{3} - 4x^{2}$$

$$dy = 3x^{2} - 8x$$

when x=3

dy = 3×3² - 8×3

= 3

Solve the simultaneous equations

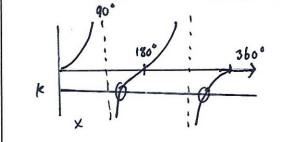
$$10x + 60y + 10z = 25$$

$$5x + 40y + 20z = 40$$

$$20x + 20y + 40z = 30 - 3$$

(4)-(3) 100y - 202 = 20 - 4 300y - 602 = 60 = 3x 3x(7)-(6) = 7 340y = 170 y = 0.5 506 y = 0.6 into (6) 20 + 602 = 110 602 = 90 2 = 1.5 506 z = 1.5 506 z = 1.5 506 z = 1.5 506 z = 20.5 into (1) 10x + 30 + 15 = 2510x = -20

How many solutions of tanx = k, where k < 0 , are between 90° and 360° ?



1x=-2

2

(1) x z