

6th November



Corbettmaths

Make c the subject of

$$\frac{5}{2a} + \frac{b}{2} - \frac{8}{c} = 0$$

$$\begin{aligned} \frac{5}{2a} + \frac{b}{2} &= \frac{8}{c} \\ \frac{8}{c} &= \frac{5+ab}{2a} \\ \frac{c}{8} &= \frac{2a}{5+ab} \\ c &= \frac{16a}{5+ab} \end{aligned}$$

$$\begin{pmatrix} 2 & -1 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} a & b \\ 0 & c \end{pmatrix} = \mathbf{I} = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$$

where \mathbf{I} is the identity matrixWork out the values of a , b and c

$$\begin{aligned} 2a &= 1 & 2b - c &= 0 \\ & & c &= 1 \\ \underline{a = \frac{1}{2}, \quad b = \frac{1}{2}, \quad c = 1} \end{aligned}$$

A curve has equation

$$y = x^4 - 3x^3 + 2x$$

Work out the equation of the tangent to the curve at the point where

$$x = -1$$

$$\frac{dy}{dx} = 4x^3 - 9x^2 + 2$$

$$x = -1 \Rightarrow \frac{dy}{dx} = -11, \quad y = 2$$

$$\begin{aligned} \text{Tgt is } y - 2 &= -11(x + 1) \\ y - 2 &= -11x - 11 \\ \underline{y} &= \underline{-11x - 9} \end{aligned}$$