22nd January

Corbettmaths

$\mathbf{A} = \begin{pmatrix} -4 & 1 \\ 2 & 3 \end{pmatrix}$

$\mathbf{B} = \begin{pmatrix} 9 & -1 \\ -1 & 0 \end{pmatrix}$

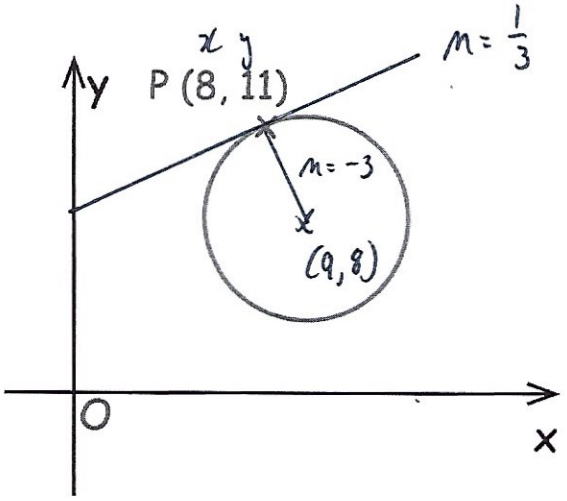
Work out the matrix **BA**

$\begin{pmatrix} 9 & -1 \\ -1 & 0 \end{pmatrix}\begin{pmatrix} -4 & 1 \\ 2 & 3 \end{pmatrix}$

$\begin{pmatrix} (9\times-4)+(-1\times2) & (9\times1)+(-1\times3) \\ (-1\times-4)+(0\times2) & (-1\times1)+(0\times3) \end{pmatrix}$

$= \begin{pmatrix} -38 & 6 \\ 4 & -1 \end{pmatrix}$

The diagram shows the circle with equation $(x-9)^2+(y-8)^2=10$ with a tangent at the point (8, 11)



Find the equation of the tangent to the circle at P

$y = \frac{1}{3}x + c$

$11 = \frac{8}{3} + c$

$c = \frac{25}{3}$

$y = \frac{1}{3}x + \frac{25}{3}$

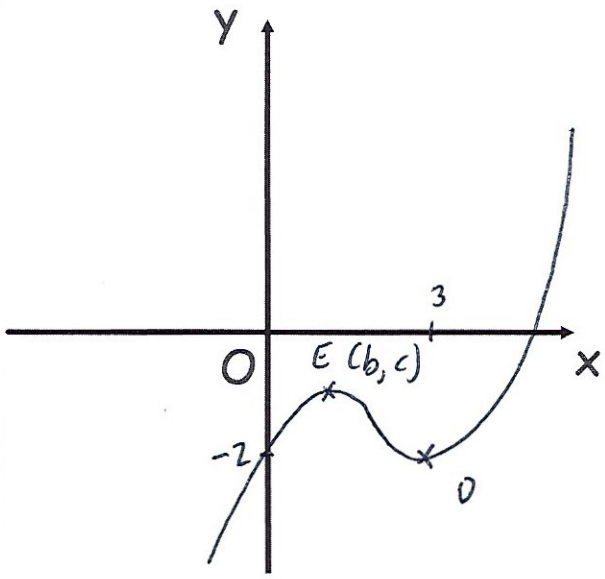
y = f(x) has exactly two stationary points.

The stationary points are

a minimum at D $(3, -2)$

a maximum at E (b, c) where $0 < b < 3$ and $-2 < c < 0$

Sketch the curve and label D and E.



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