Name: _____ 5-a-day Further Maths

13th December

Corbettmaths

The nth term of a sequence is

$$\frac{500+n}{600-3n}$$

Write down the limiting value of the sequence $n \to \infty$

$= \dfrac{\frac{500}{n}+1}{\frac{600}{n}-3} \to -\dfrac{1}{3}$

$\mathbf{A} = \begin{pmatrix} 0 & 3 \\ 2 & 1 \end{pmatrix}$ $\mathbf{B} = \begin{pmatrix} 4 & -1 \\ -1 & 3 \end{pmatrix}$

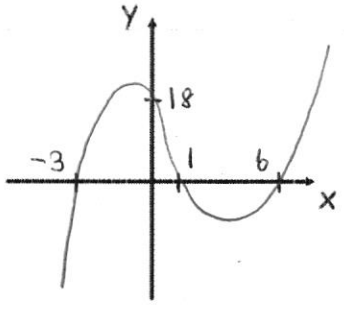
Work out the matrix **BA**

$\begin{pmatrix} 4 & -1 \\ -1 & 3 \end{pmatrix}\begin{pmatrix} 0 & 3 \\ 2 & 1 \end{pmatrix} = \begin{pmatrix} -2 & 11 \\ 6 & 0 \end{pmatrix}$

Sketch the curve

$y = (x-6)(x-1)(x+3)$

Label the points where the curve crosses the axes.



Work out the equation of the normal to the curve $y = 2x^3 + x^2 - 2x - 4$ at the point $(0, -4)$

Give your answer in the form $y = mx + c$

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

$x = 0 \Rightarrow \frac{dy}{dx} = -2 \Rightarrow m_{\perp} = \frac{1}{2}$

Normal is $y = \frac{1}{2}x - 4$

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