


15th October	
Factorise fully $(y + 7)^4 - (y + 7)^3(y - 3)$  Do not attempt to expand brackets.	 Corbettmaths $= (y + 7)^3 [(y + 7) - (y - 3)]$ $= \underline{10(y + 7)^3}$
Work out the gradient of $y = 2x^3 + 4x^2 - 7x$ at the point $(1, -1)$	$\frac{dy}{dx} = 6x^2 + 8x - 7$ $x = 1 \Rightarrow \underline{\frac{dy}{dx} = 7}$
The matrix $\begin{pmatrix} 3 & x \\ 6 & -3 \end{pmatrix}$ maps the point $(y, 4)$ onto the point $(-14, 24)$  Find the values of $x$ and $y$	$\begin{pmatrix} 3 & x \\ 6 & -3 \end{pmatrix} \begin{pmatrix} y \\ 4 \end{pmatrix} = \begin{pmatrix} -14 \\ 24 \end{pmatrix}$ $3y + 4x = -14$ $6y - 12 = 24 \Rightarrow \underline{y = 6}$ $\Rightarrow \underline{x = -8}$
Solve $x^{\frac{2}{3}} + 2x^{-\frac{1}{3}} = 3x^{\frac{5}{3}}$	$x + 2 = 3x^2$ $0 = 3x^2 - x - 2$ $0 = (3x + 2)(x - 1)$ $\underline{x = -\frac{2}{3}, 1}$