Name: _____ 5-a-day Further Maths

12th March

Corbettmaths

Make CosA the subject of

$a^2 = b^2 + c^2 - 2bcCosA$

$a^2 + 2bcCosA = b^2 + c^2$

$2bcCosA = b^2 + c^2 - a^2$

$CosA = \frac{b^2 + c^2 - a^2}{2bc}$

Work out the gradient of the curve $y = x^3(8 - x)$ at the point on the curve where $x = -\frac{1}{2}$

$y = 8x^3 - x^4$

$\frac{dy}{dx} = 24x^2 - 4x^3$

$x = -\frac{1}{2}$

$\frac{dy}{dx} = 6.5$

Work out

$\left(7^{\frac{1}{2}} + 7^{\frac{3}{2}}\right)^4$

$(7^{\frac{1}{2}} + 7^{\frac{3}{2}})(7^{\frac{1}{2}} + 7^{\frac{3}{2}})$

$7^1 + 7^2 + 7^2 + 7^3$

$= 448$

$448^2 = 200704$

Find the transformation matrix that is equivalent to

- a reflection in the line y = x

followed by

- a reflection in the y-axis

$\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$

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