Name: _____ 5-a-day Further Maths

4th March

Corbettmaths

Factorise fully

$x^3 - 9x^2 + 20x$

$x(x^2 - 9x + 20)$

$x(x-4)(x-5)$

Work out the gradient of the curve $y = (x-3)(2x+1)$ at the point when $x = -4$

$y = 2x^2 - 5x - 3$

$\frac{dy}{dx} = 4x - 5$

George has the six number cards below.

4	2	9	1	6	8

How many 4-digit numbers can be made that are less than 5000?

$3 \times 5 \times 4 \times 3$

1, 2, 4

180

Find the value of y

$2^y \times 4^{y+3} = 16$

$2^y \times (2^2)^{y+3} = 2^4$

$2^y \times 2^{2y+6} = 2^4$

$2^{3y+6} = 2^4$

$3y + 6 = 4$

$3y = -2$

$y = -\frac{2}{3}$

Show that $2\sin x = \frac{4\cos x - 1}{\tan x}$

can be expressed in the form

$6\cos^2 x - \cos x - 2 = 0$

$2\sin x \tan x = 4\cos x - 1$

$2\sin x \frac{\sin x}{\cos x} = 4\cos x - 1$

$2\sin^2 x = 4\cos^2 x - \cos x$

$2(1 - \cos^2 x) = 4\cos^2 x - \cos x$

$2 - 2\cos^2 x = 4\cos^2 x - \cos x$

$0 = 6\cos^2 x - \cos x - 2$