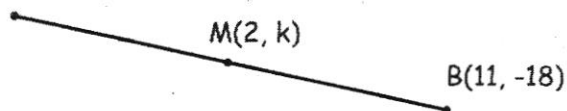


23rd November



Corbettmaths

A(-7, 6k)



B(11, -18)

M(2, k)

M is the midpoint of AB
Work out the value of k

$$\frac{6k - 18}{2} = k$$

$$6k - 18 = 2k$$

$$4k = 18$$

$$k = \frac{9}{2}$$

$$y = \frac{x^{12}}{3} + \frac{x^8}{4}$$

Work out $\frac{dy}{dx}$

Simplify your answer

$$= 4x^{11} + 2x^7$$

Prove that when any odd integer is squared, the result is always one more than a multiple of 8.

$$(2n+1)^2 = 4n^2 + 4n + 1$$

$$= 4n(n+1) + 1$$

One of $n, n+1$ even

$\Rightarrow n(n+1)$ even

$\Rightarrow 4n(n+1)$ multiple of 8

A curve has equation $y = x^2(4 - x)$

Work out the equation of the tangent to the curve at the point (4, 0)

$$= 4x^2 - x^3$$

$$\frac{dy}{dx} = 8x - 3x^2$$

$$x = 4 \Rightarrow \frac{dy}{dx} = -16$$

$$\text{Tgt: } y = -16(x - 4)$$

$$\Rightarrow y = -16x + 64$$