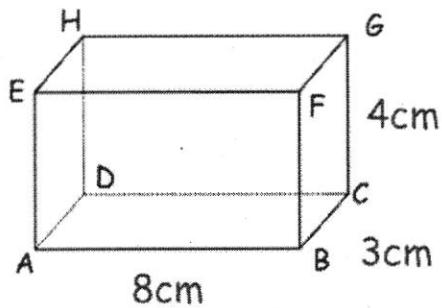


26th November



Corbettmaths



Work out the length of BH

$$BH = \sqrt{8^2 + 3^2 + 4^2}$$

$$= \sqrt{89} \quad (9.43 \text{ cm})$$

$$y = 10x^4 - \frac{4}{x^3}$$

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

$$= 10x^4 - 4x^{-3}$$

$$\frac{dy}{dx} = 40x^3 + 12x^{-4}$$

$$= 40x^3 + \frac{12}{x^4}$$

Solve the simultaneous equations

$$7x + 5y + 4z = 23 \quad (1)$$

$$21x - 10y + 6z = -4 \quad (2)$$

$$7x + 15y - 2z = -15 \quad (3)$$

$$(1) + 2 \times (3) \quad 21x + 35y = -7$$

$$(2) + 3 \times (3) \quad 42x + 35y = -49$$

$$\begin{array}{r} 21x + 35y = -7 \\ 42x + 35y = -49 \\ \hline 21x = -42 \\ \rightarrow x = -2 \\ y = 1 \\ -14 + 5 + 4z = 23 \\ 4z = 32 \\ z = 8 \end{array}$$

$$4\sin^2 x + 9\cos^2 x \equiv A + B\cos^2 x$$

Work out the values of A and B.

$$\sin^2 x = 1 - \cos^2 x$$

$$4(1 - \cos^2 x) + 9\cos^2 x$$

$$= 4 + 5\cos^2 x$$

$$\underline{A = 4} \quad \underline{B = 5}$$