Name: _____ 5-a-day Higher Plus

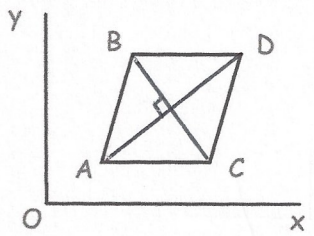
**21st December**

Corbettmaths

Simplify

$(16x^4)^{\frac{3}{2}}$

$64x^6$




$D = \frac{m}{v}$

ABCD is a rhombus
The coordinates of B are (4, 15)
The equation of diagonal AD is $y = \frac{1}{2}x + 6$

Find the equation of diagonal BC

$y = -2x + 23$

Material A has a density of 3.8g/cm³ to the nearest 0.1g/cm³ 3.75 3.85
Material B has a density of 6g/cm³ to 1 significant figure. 5.5 6.5
600g of Material A and 1kg of Material B form Material C. A: 550g/650g
Both of these masses are given to the nearest 100g. B: 1050/950g

Work out the lower bound for the density of Material C.

$D = \frac{m}{v}$ $\text{min } D = \frac{\text{Min Mass}}{\text{Max Volume}}$

$4.667\text{g/cm}^3$

Find the coordinates of the points where the curve $y = x^2 - 3x + 5$ and the line $2x - y + 1 = 0$ meet.

$2x - (x^2 - 3x + 5) + 1 = 0$

$5x - x^2 - 5 + 1 = 0$

$0 = x^2 - 5x + 4$

$(x - 4)(x - 1) = 0$

$x = 4$ or $x = 1$

$y = 9$ or $y = 3$

$(4, 9)$ or $(1, 3)$

Walter picks two integers with a difference of 3.
Prove the difference between the squares of the integers is three times the sum of the integers.

$(n+3)^2 - n^2$

$n^2 + 6n + 9 - n^2 = 6n + 9$

$(n+3) + n = 2n + 3$

$(2n + 3) \times 3 = 6n + 9$

QED