
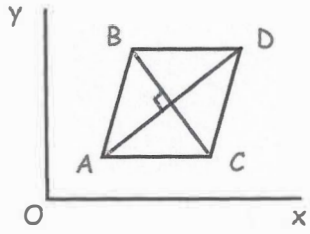


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| <p>21st December</p> |  Corbettmaths |
| <p>Simplify</p> $(16x^4)^{\frac{3}{2}}$ $64x^6$ | |
|  <p style="text-align: center;">$r = \frac{m}{o}$</p> | <p>ABCD is a rhombus The coordinates of B are (4, 15) The equation of diagonal AD is $y = \frac{1}{2}x + 6$</p> <p>Find the equation of diagonal BC</p> $y = -2x + 23$ |
| <p>Material A has a density of 3.8g/cm^3 to the nearest 0.1g/cm^3 3.75 3.85 Material B has a density of 6g/cm^3 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</p> | <p>Work out the lower bound for the density of Material C.</p> <p>For A $V_{\text{max}} = M_{\text{max}} \div D_{\text{min}}$ $650/3.75 = 173.333\dots$ For B $V_{\text{max}} = M_{\text{max}} \div D_{\text{min}}$ $1050/5.5 = 190.9090\dots$ For C $D_{\text{min}} = M_{\text{min}} \div V_{\text{max}}$ $1500/364.2424\dots = 4.118\text{g/cm}^3$</p> |
| <p>Find the coordinates of the points where the curve $y = x^2 - 3x + 5$ and the line $2x - y + 1 = 0$ meet.</p> $2x - (x^2 - 3x + 5) + 1 = 0$ $5x - x^2 - 5 + 1 = 0$ | $0 = x^2 - 5x + 4$ $(x - 4)(x - 1) = 0$ $x = 4 \text{ or } x = 1$ $y = 9 \text{ or } y = 3$ $(4, 9) \text{ or } (1, 3)$ |
| <p>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.</p> | $(n+3)^2 - n^2$ $n^2 + 6n + 9 - n^2 = 6n + 9$ $(n+3) + n = 2n + 3$ $(2n + 3) \times 3 = 6n + 9$ <p style="text-align: right;">QED</p> |