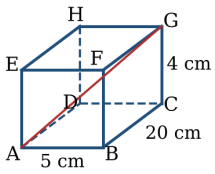
Day 33	IGCSE 10-a-day
1 A curve has equation $y = x^4 - 18x^2 - 3$. Find the coordinates of the stationary points of the curve and determine the nature of each.	
2 $A = \begin{pmatrix} 6 & -5 \\ 5 & 4 \end{pmatrix}$ and $B = \begin{pmatrix} -2 & -5 \\ -4 & 0 \end{pmatrix}$. Find the matrix X such that A + X = B.	
3 The diagram shows a cuboid ABCDEFGH. (Calculator) (a) Work out the length of the diagonal AG. (b) Work out the angle between AG and the base ABCD, to 1 decimal place. The diagram is not drawn accurately. 	
4 Here are five numbers: 2x + 4, 3x − 2, x + 4, 2x + 1, x + 2. The mean of the five numbers is 9. (a) Work out the value of x. (b) Work out the median of the five numbers.	
5 $y = -2x^3 + 6x - 1$ Find the range of values of x for which y is increasing.	

Day 33	IGCSE 10-a-day
6 $\mathbf{p} = \begin{pmatrix} 4 \\ 3 \end{pmatrix}$. Find a vector of length 20 that is parallel to $\mathbf{p}$.	
7 OA = $\mathbf{a}$ and OB = $\mathbf{b}$. OP = $-2\mathbf{a} - 2\mathbf{b}$, OQ = $-11\mathbf{a} + 10\mathbf{b}$ and OR = $-17\mathbf{a} + 18\mathbf{b}$. (a) Show that P, Q and R lie on a straight line. (b) Work out the ratio PQ : QR in its simplest form.	
8 $y = x + \frac{1}{x}$ Find the values of x for which y is increasing.	
9 $N = 2 \times 3^5 \times 5^2$ How many of the factors of N are even numbers?	
10 Solve $5 \cos x° - 1 = -1$ for $0 \leq x \leq 360$	