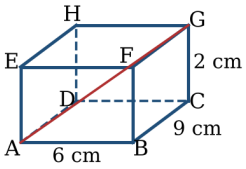
Day 72	IGCSE 10-a-day
1 Work out the gradient of the curve $y = -3x^2 - 4x - 3$ at the point where $x = 0$.	
2 Solve $9^{2x} = 27^2$	
3 ABCD is a parallelogram. A = (4, 4), B = (3, 6) and D = (9, 3). Find the coordinates of C and of the point where the diagonals meet.	
4 Maya changes £1100 into euros at £1 = €1.2. Maya spends €280 and then changes the rest back into pounds at £1 = €1.25. How many pounds does Maya get back?	
5 The curve $y = -2x^3 - 6x^2 + k$, where k is a constant, has the x-axis as a tangent. Find the two possible values of k.	

Day 72 **IGCSE 10-a-day**

6 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.



7 A particle moves in a straight line. After t seconds its displacement from O is s metres, where

$s = 24t^{\frac{3}{2}} + 2t^2$ $(t \geq 0)$

Find the velocity and the acceleration of the particle when t = 16.

8 (a) Show that the equation $x^3 - 4x - 33 = 0$ can be rearranged to give $x = \sqrt[3]{4x + 33}$
(Calculator)
(b) Use the iteration formula $x_{n+1} = \sqrt[3]{4x_n + 33}$ with $x_0 = 3$ to work out x_1 and x_2. Give each answer correct to 3 decimal places.

9 Show that $3^{t+2} + 3^t$ is always a multiple of 10.

10 The table shows how 145 students choose a sport.
A person from the group "Year 10" is picked at random. Work out the probability that this person chose Hockey.

	Football	Netball	Hockey	Total
Year 10	21	17	26	64
Year 11	29	26	26	81
Total	50	43	52	145