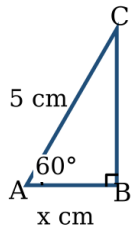
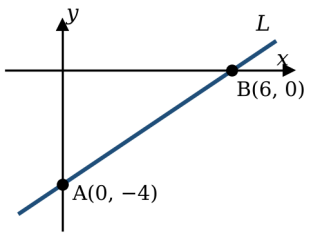
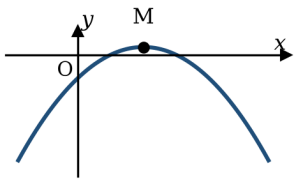
Day 212	IGCSE 10-a-day
1 The graph of $y = 3x^2 + 24x - 4$ has a turning point at P. Find the equation of the tangent to the curve at P.	
2 $\mathbf{v} = \begin{pmatrix} 5 \\ 8 \end{pmatrix}$. Find $\lvert\mathbf{v}\rvert$. Give your answer as a surd in its simplest form.	
3 ABC is a right-angled triangle. Work out the exact value of x. Give your answer in its simplest form. The diagram is not drawn accurately. 	
4 $y = 2x^3 - 24x - 8$ At the point where x = 1, is the curve increasing or decreasing? You must show your working.	
5 A metal crate in the shape of a cuboid weighs 540 N. Its smallest face has area 300 cm^2. Its largest face has area 600 cm^2. Pressure = force ÷ area Work out (a) the greatest pressure and (b) the least pressure the metal crate can exert on the ground, in N/m^2.	

Day 212 **IGCSE 10-a-day**

6 The diagram shows the straight line L, which passes through the points A and B.
The line M is perpendicular to L and passes through B.
Find the equation of M in the form y = mx + c.



7 The diagram shows a sketch of the curve $y = ax^2 + bx - 3$.
The curve has a turning point at M(2, 1).
Find the values of a and b.



8 Machine A makes 25% of the items and machine B makes the rest.
2% of items from A are faulty and 9% of items from B are faulty.
An item is chosen at random.
(a) Work out the probability that the item is faulty.
(b) The item is faulty. Work out the probability that it came from machine A.

9 Write $6^2 \times 8^4$ as a product of powers of prime numbers.

10 A is the point (4, 0) and B is the point (6, −6).
Find an equation of the perpendicular bisector of AB.
Give your answer in the form ax + by = c, where a, b and c are integers.