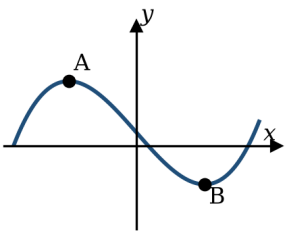
Day 249	A Level Maths: C Tier 10-a-day
1 $x^2 + kx + 81 = 0$ has equal roots. Find the possible values of k.	
2 A car of mass 800 kg is driven along a straight horizontal road by a driving force of 600 N against a constant resistance of 200 N. Find the acceleration of the car.	
3 The discrete random variable X has $P(X = x) = k(2x + 3)$ for $x = 1, 2, 3, 4, 5$. (a) Find the value of k. (b) Find $P(X \geq 3)$.	
4 The diagram shows the curve $y = x^3 - 12x + 4$. A and B are turning points. Find the coordinates of A and B. 	
5 A car of mass 1000 kg tows a caravan of mass 500 kg on a level road with acceleration 0.5 m s^{-2}. Resistances: 200 N on the car, 150 N on the caravan. Find the driving force and the tow bar tension.	

Day 249	A Level Maths: C Tier 10-a-day
6 Expand $(1 + 2x)^{\frac{1}{3}}$ in ascending powers of x up to and including the term in x^2. State the range of values of x for which the expansion is valid.	
7 A curve has equation xy = 2. Find dy/dx in terms of x and y, and hence the gradient at (1, 2).	
8 A sequence is defined by $u_{n+1} = \frac{1}{3} u_n + 8$. The sequence converges to a limit L. Find L.	
9 X ~ B(60, 0.4). Use a normal approximation to find P(X ≥ 26), to 3 s.f.	
10 (a) Convert 60° to radians, giving your answer in terms of π. (b) Convert $\frac{3\pi}{5}$ radians to degrees.	