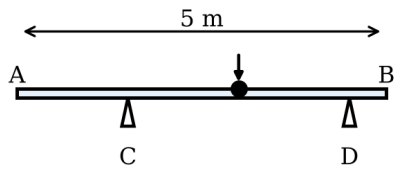
Day 158	A Level Maths: B Tier 10-a-day
1 Solve the equation $2^{2x} - 6\times2^{x} + 8 = 0$.	
2 X ~ B(19, 0.4). Find, to 3 significant figures, (a) P(X > 8) (b) P(X = 8)	
3 A uniform beam AB of length 5 m and mass 30 kg rests horizontally on supports at C and D, where AC = 1.5 m and BD = 0.5 m. A particle of mass 10 kg is placed on the beam 2 m from B. Take g = 9.8 m s^{-2}. Find the reactions at C and D. 	
4 Solve $e^{2x} = 50$, giving your answer to 3 s.f.	
5 A circle has equation $x^2 + y^2 - 2x + 8y - 10 = 0$. Find the coordinates of its centre and its radius.	

Day 158	A Level Maths: B Tier 10-a-day
6 A particle moves in a straight line. At time t s its velocity is $v = 18t - 3t^2$ m s^{-1}, for $t \geq 0$. Find the maximum speed of the particle and the time at which it occurs.	
7 Given that $24\cos\theta + 7\sin\theta \equiv 25\cos(\theta - 16.3°)$, solve $24\cos\theta + 7\sin\theta = -4$ for $0 \leq \theta \leq 360°$. (1 d.p.)	
8 A class of width 10, frequency 18, is a bar 2 cm wide, 2.25 cm tall. (a) Find the bar height for width 30, frequency 45. (b) Find the frequency of a 1.5 cm by 2 cm bar.	
9 Expand and simplify $(2 + 2\sqrt{6})(5 - \sqrt{6})$, giving your answer in the form $a + b\sqrt{6}$.	
10 Solve $10\cos^2 x - 3\cos x - 1 = 0$ for $0 \leq x \leq 360°$, giving answers to 1 d.p. where necessary.	