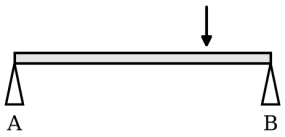
Day 308	A Level Maths: C Tier 10-a-day
1 A sector of a circle has radius 9 cm and angle 0.5 radians. Find (a) the arc length, (b) the perimeter of the sector.	
2 The table summarises the number of pets owned by 25 people. Pets, x: 0, 1, 2, 3, 4 Frequency, f: 3, 5, 2, 7, 8 Find the mean.	
3 Find the sum of the first 9 terms of the geometric series 6 + 30 + 150 + ...	
4 $x_{n+1} = \sqrt{2x_n + 1}$, with $x_0 = 2$. Find x_1, x_2 and x_3 to 3 decimal places.	
5 Sketch $y = \lvert x^2 - 25 \rvert$. Write down the coordinates where the graph meets the axes and the coordinates of the local maximum point.	

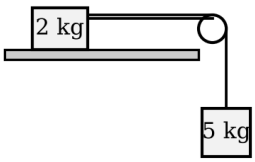
Day 308 **A Level Maths: C Tier 10-a-day**

6 A uniform beam AB of mass 30 kg and length 5 m rests horizontally on supports at A and B. A load of mass 5 kg is placed on the beam 3.75 m from A. Take g = 9.8 m s^{-2}. Find the reaction at B.



7 $(x - 2)$ is a factor of $x^3 + kx^2 - 2x$.
Find the value of k.

8 A 2 kg particle on a smooth horizontal table is joined by a light string over a smooth pulley to a hanging 5 kg particle, as shown. The system is released from rest. Take g = 9.8 m s^{-2}. Find the tension.



9 (a) Show that $x^2 - x - 2 = 0$ can be rearranged to $x = \sqrt{x + 2}$.
(b) Use x_{n+1} = this formula with $x_0 = 3$ to find x_1, x_2 to 3 d.p.

10 X ~ B(120, 0.2). Use a normal approximation to find $P(X \leq 24)$, to 3 s.f.