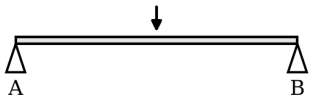
Day 270	A Level Maths: C Tier 10-a-day
1 Solve the simultaneous equations: $y = x^2 - 4x + 12$, $y = 2x + 4$.	
2 A curve has equation $x^2 + y^2 = 169$. Find dy/dx in terms of x and y, and hence the gradient at (5, −12).	
3 A light plank rests on a pivot. A child of mass 40 kg sits 2 m from the pivot on one side. Where must a child of mass 32 kg sit on the other side for the plank to balance horizontally?	
4 Use $\sin\theta \approx \theta$ to estimate sin 5°, giving your answer to 3 significant figures.	
5 A model relates the temperature, T °C, of a cooling drink to the time, t minutes, since pouring by $T = 88 - 1t$. Interpret the value 88 in this context.	

Day 270 **A Level Maths: C Tier 10-a-day**

6 A curve has parametric equations
$x = t + 3$, $y = 4t^2 + 6$.
Find a Cartesian equation of the curve.

7 A uniform beam AB of mass 30 kg and length 8 m rests horizontally on supports at A and B. A load of mass 10 kg is placed on the beam 4 m from A. Take $g = 9.8$ m s^{-2}. Find the reaction at B.



8 The line $y = -4x + k$ is a tangent to the curve $y = x^2 - 6x + 4$.
Find the value of k.

9 A is acute and $\cos A = \frac{8}{17}$.
Find the exact values of sin 2A and cos 2A.

10 The box plot summarises the journey times, in minutes, of some commuters.
Find the range and the interquartile range.

