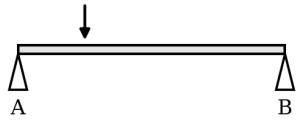
Day 59	A Level Maths: C Tier 10-a-day
1 A model relates the height, h cm, of a plant to the days, d, since planting by $h = 7 + 1.3d$. Interpret the value 1.3 in this context.	
2 Three forces $(-5\mathbf{i})$ N, $(\mathbf{i} - 4\mathbf{j})$ N and $(p\mathbf{i} + q\mathbf{j})$ N act on a particle which is in equilibrium. $\mathbf{i}$ and $\mathbf{j}$ are perpendicular unit vectors. Find the values of p and q.	
3 Simplify $\sqrt{4x^6} \times 5x^2$.	
4 Write $2 \log a + 2 \log b - \log c$ as a single logarithm.	
5 $f(x) = 3x - 2$ and $g(x) = x^2 + 4$. Find (a) fg(x), (b) gf(x).	

Day 59	A Level Maths: C Tier 10-a-day
6 A uniform beam AB of mass 40 kg and length 6 m rests horizontally on supports at A and B. A load of mass 5 kg is placed on the beam 1.5 m from A. Take g = 9.8 m s^{-2}. Find the reaction at B.  	
7 f(x) = 21 sin x + 20 cos x + 2. Write f(x) in the form R sin(x + α) + 2, with α in degrees to 1 d.p., and state the maximum value of f(x).	
8 X ~ B(n, p) has mean 8 and variance 4.8. Find n and p.	
9 Use integration by parts to find $\int x \cos 2x \, dx$.	
10 Expand and simplify $(7 - \sqrt{2})(4 + \sqrt{2})$.	