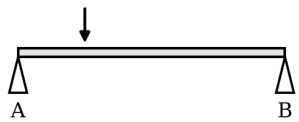
Day 152	A Level Maths: C Tier 10-a-day
1 A horizontal force of 114 N acts on a sledge of mass 3 kg on a smooth horizontal surface. Find the acceleration.	
2 Simplify $\sqrt{4x^6} \times 3x$.	
3 A bag has 7 red and 7 blue marbles. Two are taken at random without replacement. Find the probability that at least one of them is red.	
4 $f(x) = x^2 - \ln x - 5$. Show that $f(x) = 0$ has a root between $x = 2$ and $x = 3$.	
5 A uniform beam AB of mass 40 kg and length 6 m rests horizontally on supports at A and B. A load of mass 10 kg is placed on the beam 1.5 m from A. Take $g = 9.8$ m s^{-2}. Find the reaction at B. 	

Day 152	A Level Maths: C Tier 10-a-day
6 Express $\frac{x+6}{(x+3)(x+2)}$ in the form $\frac{A}{x+3}+\frac{B}{x+2}$. Find the values of A and B.	
7 A population is N(μ, 6^2). H_0: $\mu = 40$, H_1: $\mu < 40$. A sample of 16 has mean $\bar{x} = 38.5$. Test at the 5% level. Critical value: $z = -1.645$.	
8 Sketch $y = \lvert 2x + 5 \rvert$. Write down the coordinates of the vertex and of the point where the graph meets the y-axis.	
9 A(-2, -1), B(4, 2) and C(8, 4). Show that A, B and C are collinear and find AB : BC.	
10 The line $y = -2x + k$ is a tangent to the curve $y = x^2 + 4$. Find the value of k.	