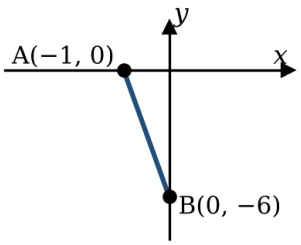
Day 46	A Level Maths: C Tier 10-a-day
1 A model relates the temperature, T °C, of a cooling drink to the time, t minutes, since pouring by $T = 77 - 2.5t$. Interpret the value 2.5 in this context.	
2 Simplify $\tan x \cos x$.	
3 A particle moves with constant velocity $(3\mathbf{i} - 2\mathbf{j})$ m s^{-1}. It is at the point with position vector $(\mathbf{i} + \mathbf{j})$ m at t = 0. Find the time when its position vector is $(7\mathbf{i} - 3\mathbf{j})$ m.	
4 The diagram shows a line meeting the axes at A and B. Find (a) the equation of AB in the form $px + qy = r$ with integers p, q and r, (b) the length AB. 	
5 $f(x) = x^3 - 2x - 5$. Use the Newton-Raphson method with $x_0 = 2$ to find x_1 and x_2, giving your answer to 3 decimal places.	

Day 46	A Level Maths: C Tier 10-a-day
6 A population is N(μ, 6^2). H_0: $\mu = 35$, H_1: $\mu \neq 35$. A sample of 64 has mean $\bar{x} = 36.2$. Test at the 5% level. Critical value: $z = \pm 1.96$.	
7 A car moving in a straight line increases its speed from 4 m s^{-1} to 11 m s^{-1} with constant acceleration 0.5 m s^{-2}. Find the time taken.	
8 Express $\frac{x - 5}{(x + 1)^2}$ in the form $\frac{A}{(x + 1)} + \frac{B}{(x + 1)^2}$.	
9 A farmer has 24 m of fencing for three sides of a rectangular pen; the fourth side is a wall. Find the maximum area of the pen.	
10 Sketch $y = 2 \times 5^x - 250$. Write down the equation of the asymptote and the coordinates where the curve meets the axes.	