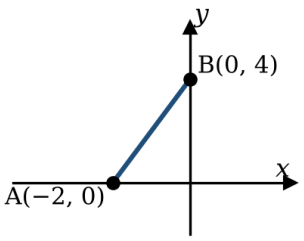
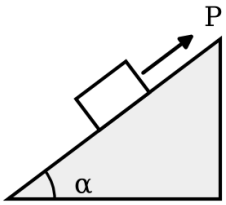
Day 44	A Level Maths: C Tier 10-a-day
1 The vector $\mathbf{p} = -7\mathbf{i} + 24\mathbf{j}$. Find (a) $\lvert\mathbf{p}\rvert$, (b) the angle p makes with the positive x-axis, measured anticlockwise (1 d.p.).	
2 An arithmetic sequence begins 11, 17, 23, 29, ... Find (a) an expression for the nth term, (b) the 36th term.	
3 A particle moves in a straight line. Its acceleration at time t seconds is $(3t + 5)$ m s^{-2}. When $t = 0$ its velocity is 2 m s^{-1}. Find its velocity when $t = 6$.	
4 12 pairs of data on daily mean temperature and sunshine hours have $r = 0.35$. Test, at the 5% significance level, for evidence of positive correlation. The critical value is 0.4973.	
5 A curve has parametric equations $x = t$, $y = \frac{6}{t}$, $t \neq 0$. Find a Cartesian equation of the curve.	

Day 44	A Level Maths: C Tier 10-a-day
6 Water fills a tank with a square base of side 10 m. The depth h m increases at 0.5 m/min. Find the rate of increase of volume.	
7 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. 	
8 A particle of mass 13 kg rests on a smooth plane inclined at α to the horizontal, where tan $\alpha = \frac{3}{4}$. It is held by a force P N up the slope. Take g = 9.8 m s^{-2}. Find P and the normal reaction. 	
9 The mean of 40 times (seconds) of the Class A is 79. The mean of 40 times (seconds) of the Class B is 75. Find the mean of all 80 values.	
10 Use a double angle formula to find $\int \sin^2 3x \, dx$.	