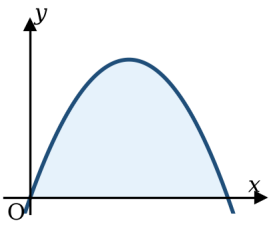
Day 30	A Level Maths: C Tier 10-a-day
1 Find the set of values of k for which $3x^2 - 2x + k = 0$ has real roots.	
2 Here are 11 values: 6, 27, 79, 75, 28, 17, 9, 44, 42, 65, 11 Find the median and the interquartile range.	
3 The diagram shows the curve $y = 3x(6 - x)$. Find the area of the shaded region, between the curve and the x-axis. 	
4 A stone is thrown vertically downwards at 12 m s^{-1} from the top of a cliff and hits the sea after 3 s. Taking g = 9.8 m s^{-2}, find the height of the cliff.	
5 Use proof by exhaustion to show that $n^3 - n$ is divisible by 6 for every integer n with $1 \leq n \leq 4$.	

Day 30	A Level Maths: C Tier 10-a-day
6 A particle moves with constant velocity $(-2\mathbf{i} + 3\mathbf{j})$ 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 $(-11\mathbf{i} + 17\mathbf{j})$ m.	
7 X ~ B(40, 0.25). Use a normal approximation to find P(X ≤ 9), to 3 s.f.	
8 $\mathbf{a} = -3\mathbf{i} + 4\mathbf{j} + \mathbf{k}$ and $\mathbf{b} = 4\mathbf{i} + \mathbf{j} + 2\mathbf{k}$. Find the angle between a and b, to 1 decimal place.	
9 Express $\frac{-x + 7}{(x + 2)(x - 1)}$ in partial fractions.	
10 A curve has equation $2x^2 + 3y^2 = 21$. Find dy/dx in terms of x and y, and hence the gradient at (3, 1).	