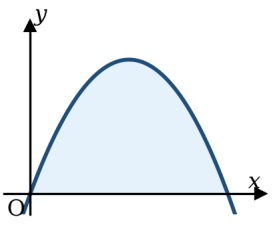
Day 21	A Level Maths: C Tier 10-a-day
1 Variables x and y satisfy $y = ab^x$. A graph of $\log_{10} y$ against x is a straight line with gradient 0.7 and intercept 0.9. Find a and b to 3 significant figures.	
2 Describe the single transformation that maps the graph of y = f(x) onto the graph of y = f(−x).	
3 A researcher wants to find out the views of the students at a college. Give one advantage and one disadvantage of using stratified sampling.	
4 The diagram shows the curve y = x(6 − x). Find the area of the shaded region, between the curve and the x-axis. 	
5 Find the sum of the first 5 terms of the geometric series 3 + 9 + 27 + ...	

Day 21	A Level Maths: C Tier 10-a-day
6 Two forces $(2\mathbf{i} + \mathbf{j})$ N and $(7\mathbf{i} + 2\mathbf{j})$ N act on a particle of mass 3 kg. No other horizontal forces act. Find the acceleration of the particle as a vector in terms of $\mathbf{i}$ and $\mathbf{j}$.	
7 $X \sim N(95, 5^2)$. Given that $P(X < a) = 0.6$, find a to 3 s.f.	
8 A particle slides down a rough plane inclined at angle α to the horizontal, where $\sin\alpha = \frac{3}{5}$ and the coefficient of friction is 0.125. Take g = 9.8 m s^{-2}. Find the acceleration.	
9 A geometric series has first term 14 and common ratio $\frac{2}{5}$. Find the sum to infinity.	
10 The product of x and $(27 - x^2)$ is $P = 27x - x^3$, $x > 0$. Find the maximum value of P.	