Day 238	S Tier 10-a-day
1 The interior angles of a pentagon are $x°$, $(2x - 30)°$, $(x + 15)°$, $(x - 5)°$, $(x + 20)°$ (a) Work out the value of x. (b) Work out the size of the largest angle.	
2 Solve $x^2 + 3x - 18 = 0$	
3 The 5-digit number 20k20 is a multiple of 9. k is a single digit. Find all the possible values of k.	
4 The nth term of a sequence is $n^2 + 7n - 6$. (a) Work out the 8th term. (b) Is 54 a term of the sequence? You must show your working.	
5 Evan invests £3,000. The account pays compound interest of 4% a year for the first 2 years, then 1% a year for the next 2 years. Work out the total amount after 4 years, to the nearest penny. (Calculator)	

Day 238	S Tier 10-a-day
6 A population of fish starts at 1,000 and grows by 20% each year. After how many whole years will the population first be at least double its starting value? (Calculator)	
7 Solve $x^{\frac{3}{2}} = 125$	
8 A train travels at a constant speed of 90 km/h. It takes 30 seconds to cross completely over a bridge which is 430 m long. Work out the length of the train, in metres.	
9 A circle has equation $x^2 + y^2 = 841$. The point P(20, −21) lies on the circle. (a) Find the equation of the tangent to the circle at P. Give your answer in the form ax + by = c, where a, b and c are integers. (b) The tangent meets the x-axis at the point T. Write down the coordinates of T.	
10 Write $\frac{5+\sqrt{10}}{5-\sqrt{10}}$ in the form $p + q\sqrt{10}$ where p and q are rational numbers.	