Day 135	S Tier 10-a-day
1 Each interior angle of a regular polygon is 168°. Work out the number of sides of the polygon.	
2 $A = 2^2 \times 7^2 \times 11$ $B = 7^2 \times 11$ Write down, as a product of prime factors, (a) the HCF of A and B (b) the LCM of A and B	
3 The mean of 9 numbers is 105. A new number is added and the mean of all 10 numbers is 96.8. Work out the new number.	
4 A culture has 1000 bacteria. The number of bacteria increases by 8% each hour. After how many whole hours will there first be more than 1350 bacteria? (Calculator)	
5 Triangle T has vertices A(2, −6), B(5, −4), C(1, −1). T is enlarged with scale factor 3 and centre (4, −3). (a) Write down the coordinates of the image of A. (b) The area of T is 8 square units. Work out the area of the image of T.	

Day 135	S Tier 10-a-day
6 Evan invests £1,000 for 4 years at 5% per year simple interest. Omar invests £1,000 for 4 years at 5% per year compound interest. Work out how much more interest Omar earns than Evan. Give your answer to the nearest penny. (Calculator)	
7 (a) Write $x^2 - 4x + 12$ in the form $(x + p)^2 + q$ (b) Write down the coordinates of the turning point of the curve $y = x^2 - 4x + 12$	
8 Make x the subject of $y(x + 4) = x - y$	
9 A walker leaves a camp P and travels 30 km on a bearing of 240° to Q. (Calculator) It then travels 99 km on a bearing of 165° to R. (a) Work out the distance PR. (b) Work out the bearing of R from P. Give distances to 1 decimal place and the bearing to the nearest degree.	
10 An alloy contains 355 g of zinc and 89 g of nickel. The density of zinc is 7.1 g/cm^3. The density of nickel is 8.9 g/cm^3. Work out the density of the alloy.	