Day 225	A Tier 10-a-day
1 (a) Write down all the prime numbers between 30 and 46. (b) Write 57 as the product of two prime numbers.	
2 A regular octagon and an equilateral triangle share the side AB and are on opposite sides of it. The two shapes meet at the point A. Work out the size of the angle at A that is not inside either shape.	
3 (a) Factorise $9y^2 - 16z^2$ (b) Use the same idea to work out $7^2 - 3^2$ without a calculator.	
4 Isla is paid £15.60 per hour for a basic week of 36 hours. (Calculator) Overtime is paid at double time. Last week Isla worked 7 hours of overtime. Work out Isla's total pay for the week.	
5 Solve $2x^2 + x = 15$	

Day 225	A Tier 10-a-day
6 A bag contains red counters and blue counters in the ratio 7 : 5. 18 more red counters are added to the bag. The ratio of red counters to blue counters is now 9 : 5. How many counters were in the bag at the start?	
7 The graph of y = f(x) has a maximum point at (3, −3). Write down the coordinates of the turning point of the graph of (a) y = f(x) + 3 (b) y = 3f(x)	
8 A boat leaves a port and travels 48 miles on a bearing of 185°. (Calculator) It then travels 14 miles on a bearing of 095°. (a) Work out how far it is now from the port. (b) Work out the bearing of its final position from the port. Give your answer to the nearest degree.	
9 The length and width of a rectangular poster are 6.7 cm and 9.2 cm. Each measurement is correct to 1 decimal place. Work out the lower bound for the area.	
10 A bag contains 4 red counters and 3 blue counters. Three counters are taken at random without replacement. Work out the probability that all three counters are red.	