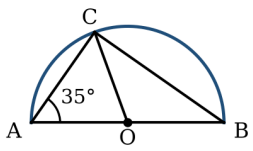
Day 187	S Tier 10-a-day
1 A stone block in the shape of a cuboid weighs 270 N. Its smallest face has area 250 cm^2. Its largest face has area 400 cm^2. Pressure = force ÷ area Work out (a) the greatest pressure and (b) the least pressure the stone block can exert on the ground, in N/m^2.	
2 The 4-digit number 342k is a multiple of 12. k is a single digit. Find all the possible values of k.	
3 AB is a diameter of a circle, centre O. C is a point on the circle. Angle BAC = 35°. (a) Work out the size of angle ACB. (b) Work out the size of angle COB. The diagram is not drawn accurately. 	
4 Solve $2x^2 - 10x > 0$	
5 A fair 4-sided dice and a fair 6-sided dice are each thrown once. The first score and the second score are recorded. (a) Work out the probability that the product is greater than 8. (b) Given that the first number is greater than the second, work out the probability that the product is greater than 8.	

Day 187	S Tier 10-a-day
6 Write $\frac{2}{x+2} - \frac{x-4}{x-2}$ as a single fraction. Simplify the numerator.	
7 Find the smallest positive integer k such that 18 × k is a cube number.	
8 A is the point (−3, 5) and B is the point (−7, −3). Find an equation of the perpendicular bisector of AB. Give your answer in the form ax + by = c, where a, b and c are integers.	
9 Write $\frac{3^n \times 9^{n-2}}{9^n}$ in the form 3^{an+c} where a and c are integers.	
10 The line y = kx − 5 is a tangent to the curve y = x^2 + 2. Find the possible values of k. Give any surds in their simplest form.	