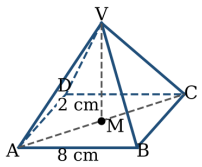
Day 225	S Tier 10-a-day
1 A metal pipe is a hollow cylinder of length 25 cm. (Calculator) The outer radius is 10 cm and the inner radius is 9.5 cm. The density of the metal is 2.7 g/cm^3. Work out the mass of the pipe. Give your answer in kilograms correct to 3 significant figures.	
2 Make x the subject of $y = \frac{4x + 2}{2x + 4}$	
3 Work out $(1\frac{1}{3} - \frac{2}{3}) \div 2\frac{1}{2}$ Give your answer as a mixed number or a fraction in its simplest form.	
4 FitLife has a joining fee of £5 plus £5.50 per month. GymNow has a joining fee of £13 plus £3.50 per month. (a) Work out the number of months for which the two costs are the same. (b) Which is cheaper for 7 months, and by how much?	
5 Grace changes £300 into euros at £1 = €1.18. Grace spends €80 and then changes the rest back into pounds at £1 = €1.6. How many pounds does Grace get back?	

Day 225	S Tier 10-a-day
6 Use the iteration formula $x_{n+1} = \sqrt{3x_n + 1}$ with $x_0 = 3$ (Calculator) to work out x_1, x_2 and x_3. Give each answer correct to 3 decimal places.	
7 A is the point (1, 0) and B is the point (−7, −4). 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.	
8 VABCD is a pyramid on a square base. V is directly above the centre M. (Calculator) (a) Work out AC as a simplified surd. (b) Work out the angle between VA and the base, to 1 d.p. The diagram is not drawn accurately. 	
9 The probability that it rains on a day is 0.3. If it rains, the probability that Ali is late for school is 0.7. If it does not rain, the probability that Ali is late is 0.1. (a) Work out the probability that Ali is late. (b) Ali is late. Work out the probability that it rained.	
10 A shop buys a printer for £140. It adds a 20% mark-up to get the selling price. In a sale the selling price is reduced by 30%. Work out the percentage profit or loss on the original cost.	