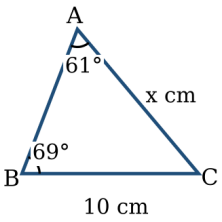
Day 338	S Tier 10-a-day
1 Factorise $16x^2 + 8x - 3$	
2 60 fish in a lake are caught, tagged and put back. Later, a second sample of 100 fish is caught. 8 of these are tagged. (a) Work out an estimate for the number of fish in a lake. (b) State one assumption you have made.	
3 The diagram shows triangle ABC. (Calculator) Work out the length of AC. Give your answer correct to 1 decimal place. The diagram is not drawn accurately. 	
4 The capacity of a tank is 0.88 litres, correct to 2 significant figures. Write down the error interval for the capacity of a tank, using c.	
5 A metal pipe is a hollow cylinder of length 20 cm. (Calculator) The outer radius is 3 cm and the inner radius is 1 cm. The density of the metal is 8.9 g/cm^3. Work out the mass of the pipe. Give your answer in kilograms correct to 3 significant figures.	

Day 338	S Tier 10-a-day
6 Solve $3x^2 \geq -9x$	
7 Write $\frac{16^{n+1} \times 8^{n+3}}{8^n}$ in the form 2^{an+c} where a and c are integers.	
8 Write $\frac{6+\sqrt{2}}{2-\sqrt{2}}$ in the form $p + q\sqrt{2}$ where p and q are rational numbers.	
9 ABCD is a rectangle with AB = 8 cm and AD = 11 cm. A point P inside the rectangle is such that AP ≤ 8 cm and P is nearer to A than to B. Work out the area of the region in which P can lie. Give your answer in terms of π and surds.	
10 Liam and Fatima share some money in the ratio 6 : 1. Liam gives Fatima £8. The ratio of their money is now 5 : 2. How much money do they have altogether?	