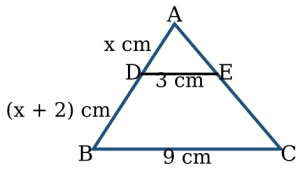
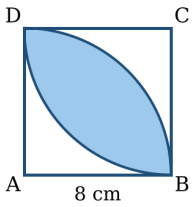
Day 129	S Tier 10-a-day
1 Factorise $12x^2 + 37x + 28$	
2 A factory makes 5,000 parts. 4% of them are faulty. A scanner flags 95% of faulty parts and wrongly flags 2% of parts that are not faulty. A part is chosen at random from the parts flagged by the scanner. Work out the probability that this part is faulty.	
3 In the diagram, DE is parallel to BC. AD = x cm, DB = (x + 2) cm, DE = 3 cm and BC = 9 cm. (a) Find the value of x. (b) Work out the length of AB. The diagram is not drawn accurately. 	
4 Solve $x^2 \leq -10x - 21$	
5 A shop mixes two types of flour. Type A costs £5.00 per kg and type B costs £12.00 per kg. They are mixed in the ratio A : B = 3 : 1. The mixture is sold for £9.45 per kg. Work out the percentage profit.	

Day 129	S Tier 10-a-day
6 A virus has a diameter of 2.5×10^{-7} metres. Viruses are placed in a straight line, touching, to make a length of 9.5×10^{-1} metres. How many viruses are in the line? Give your answer in standard form.	
7 ABCD is a square of side 8 cm. BD is an arc of a circle with centre A and an arc of a circle with centre C. Work out the area of the shaded region. Give your answer in terms of π. 	
8 A circle has equation $(x + 2)^2 + (y + 1)^2 = 100$. The point P$(-10, 5)$ lies on the circle. Find an equation of the tangent to the circle at P. Give your answer in the form $ax + by = c$, where a, b and c are integers.	
9 ABCD is a rectangle with AB = 3 cm and AD = 7 cm. A point P inside the rectangle is such that AP $\leq$ 2 cm and P is nearer to AB than to AD. Work out the area of the region in which P can lie. Give your answer in terms of π.	
10 Show that $\sqrt{15 + 6\sqrt{6}} = 3 + \sqrt{6}$	