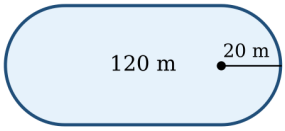
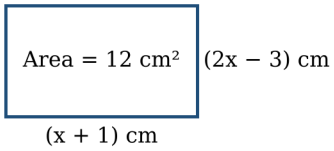
Day 158	S Tier 10-a-day
1 The price of a laptop is decreased by 15%. The new amount is then decreased by 10%. Work out the overall percentage change.	
2 (a) Write $4x^2 + 8x + 6$ in the form $a(x + p)^2 + q$ (b) Write down the coordinates of the turning point of the curve $y = 4x^2 + 8x + 6$	
3 Liam invested £8,000 in a savings account for 2 years. Compound interest was paid at a fixed rate per year. At the end of the 2 years the account held £8,323.20. Work out the annual rate of interest. (Calculator)	
4 The diagram shows a running track made from a rectangle and two semicircles. (a) Work out the total length of the boundary of the track. (b) Work out the area enclosed by the track. Give your answers in terms of π. The diagram is not drawn accurately. 	
5 The probability that a bus is more than 5 minutes late on any morning is $\frac{1}{4}$. Events on different occasions are independent. Work out the probability that this happens at least once in 4 mornings. Give your answer correct to 3 significant figures. (Calculator)	

Day 158	S Tier 10-a-day
6 Chen invests £2,500 for 4 years at 2.5% per year simple interest. Gareth invests £2,500 for 4 years at 2.5% per year compound interest. Work out how much more interest Gareth earns than Chen. Give your answer to the nearest penny. (Calculator)	
7 Simplify fully $\frac{x^2 - 12x + 35}{x^2 - 3x} \times \frac{x^2 + 2x}{x - 5}$	
8 The diagram shows a rectangle of length (x + 1) cm, width (2x − 3) cm and area 12 cm^2. (a) Show that $2x^2 - x - 15 = 0$. (b) Work out the length of the diagonal of the rectangle. Give your answer correct to 3 significant figures. 	
9 Simplify $\frac{1}{2 + \sqrt{3}} - \frac{2}{2 - \sqrt{3}}$ Give your answer with a rational denominator.	
10 A point A is on level ground in line with the base of a lighthouse. (Calculator) The angle of elevation of the top of the lighthouse from A is 43°. B is a point on the same line, 40 m further from the lighthouse than A. The angle of elevation of the top of the lighthouse from B is 24°. Work out the height of the lighthouse. Give your answer to 1 decimal place.	