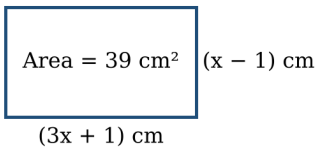
Day 84	S Tier 10-a-day
1 A boat leaves a harbour P and travels 83 km on a bearing of 135° to Q. (Calculator) It then travels 97 km on a bearing of 285° to R. (a) Work out the distance PR. (b) Work out the bearing of R from P. Give distances to 1 decimal place and the bearing to the nearest degree.	
2 Expand and simplify $(x - 6)^2(x + 3)$	
3 A 20% decrease followed by a 15% decrease is equivalent to a single percentage change. Work out the single percentage change that has the same effect.	
4 A bag contains 5 red sweets, 4 blue sweets and 1 green sweet. Two sweets are taken at random without replacement. Work out the probability that (a) they are different colours, (b) both are the same colour.	
5 The graph of $y = f(x)$ has a minimum point at (4, 1). Write down the coordinates of the turning point of the graph of (a) $y = f(x - 2)$ (b) $y = f(x - 4) - 1$	

Day 84	S Tier 10-a-day
6 A rectangle has length (3x + 5) cm and width (x + 4) cm. The area of the rectangle is 348 cm^2. (a) Show that $3x^2 + 17x - 328 = 0$ (b) Work out the perimeter of the rectangle.	
7 The price of a bicycle is increased by 5%. The new price is then decreased by 8%. The final price is £966. Work out the original price of the bicycle.	
8 In a population of 10,000 people, 1% have a certain disease. A test gives a positive result for 80% of people who have the disease and for 4% of people who do not. A person is chosen at random and tests positive. Work out the probability that they have the disease.	
9 The diagram shows a rectangle of length (3x + 1) cm, width (x − 1) cm and area 39 cm^2. (a) Show that $3x^2 - 2x - 40 = 0$. (b) Work out the perimeter of the rectangle. 	
10 The price of a television is decreased by x%. The new price is then increased by x%. The final price is 1% less than the original price. Work out the value of x.	