Day 112	S Tier 10-a-day
1 Solve $5x^2 - 8x - 6 = 0$ (Calculator) Give your answers correct to 2 decimal places.	
2 In triangle PQR, side QR is extended to S. Angle QPR = $(5x - 10)°$ Angle PQR = $(3x - 5)°$ Angle PRS = $(6x + 17)°$ (a) Work out the value of x. (b) Work out the size of angle PRQ.	
3 The point P(4, 2) lies on the graph of y = f(x). Write down the coordinates of the image of P on the graph of (a) y = f(x + 4) (b) y = f(−x)	
4 The rent of a flat is increased by 400%. By what percentage must the new value be decreased to get back to the original value?	
5 Make r the subject of $P = \frac{4}{\sqrt{r}}$	

Day 112	S Tier 10-a-day
6 A retailer buys a games console for £350. It adds an 80% mark-up to get the selling price. In a sale the selling price is reduced by 25%. Work out the percentage profit or loss on the original cost.	
7 An alloy contains 426 g of zinc and 678 g of lead. The density of zinc is 7.1 g/cm^3. The density of lead is 11.3 g/cm^3. Work out the density of the alloy.	
8 A rectangle has area $(11 + 7\sqrt{3})$ cm^2 and length $(2 + \sqrt{3})$ cm. Find the width of the rectangle. Give your answer in the form $a + b\sqrt{3}$	
9 A bag contains some beads. 7 of them are blue and the rest are black. Two beads are taken at random without replacement. The probability that both are blue is $\frac{7}{22}$. Work out how many beads are black.	
10 A metal pipe is a hollow cylinder with outer radius 8 cm and inner radius 7 cm. (Calculator) The density of the metal is 2.7 g/cm^3. The mass of the pipe is 3.82 kg. Work out the length of the pipe. Give your answer in centimetres correct to 3 significant figures.	