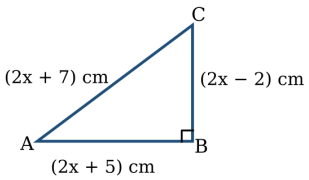
Day 150	S Tier 10-a-day
1 Work out the value of $m^2 - 3nk$ when $m = -4$, $n = -2$ and $k = 1$.	
2 Given that $x > 0$, solve $x^{\frac{5}{4}} = 243$	
3 The 6th term of an arithmetic sequence is 33. The 13th term of the sequence is 54. (a) Find an expression for the nth term of the sequence. (b) Is 118 a term of the sequence? You must show your working.	
4 Work out $(5.6 \times 10^{-6}) \div (2 \times 10^{-3})$ Give your answer in standard form.	
5 The ratio of red to blue marbles in a jar is 3 : 7. Then $\frac{1}{6}$ of the red and $\frac{2}{3}$ of the blue are taken out. Work out the ratio of red to blue now.	

Day 150	S Tier 10-a-day
6 A and B are points on the curve $y = x^3 - 4x$. The x coordinate of A is -3 and the x coordinate of B is 0. Work out the gradient of the line AB.	
7 ABC is a right-angled triangle with sides (2x + 5) cm, (2x − 2) cm and (2x + 7) cm. The longest side is (2x + 7) cm. (a) Find the value of x. (b) Work out the area of the triangle. The diagram is not drawn accurately. 	
8 The price of a sofa is increased by 25%. Later the new price is reduced by 10% in a sale. The sale price is £652.50. Work out the price before the increase. (Calculator)	
9 Find the smallest positive integer k such that 15,000 ÷ k is a square number.	
10 Work out the exact value of sin 30° ÷ tan 60° Give your answer in its simplest form, as a fraction or surd. Do not use a calculator.	