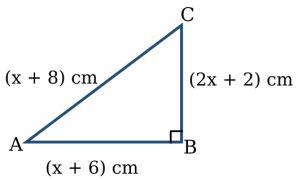
Day 248	S Tier 10-a-day
1 Solve $\frac{x+6}{5} + \frac{x-4}{2} = -5$	
2 The volume of juice is 0.19 litres, truncated to 2 decimal places. Write down the error interval for the volume of juice, using v.	
3 The mean of 8 numbers is 119. A new number is added and the mean of all 9 numbers is 108. Work out the new number.	
4 $A = 3 \times 5^3$ $B = 2^2 \times 3^4 \times 5$ Write down, as a product of prime factors, (a) the HCF of A and B (b) the LCM of A and B	
5 A and B are points on the curve $y = x^2 + x - 4$. The x coordinate of A is 0 and the x coordinate of B is 3. Work out the gradient of the line AB.	

Day 248	S Tier 10-a-day
6 $N = 2^4 \times 3^3$ How many of the factors of N are odd numbers?	
7 ABC is a right-angled triangle with sides (x + 6) cm, (2x + 2) cm and (x + 8) cm. The longest side is (x + 8) cm. (a) Find the value of x. (b) Work out the area of the triangle. The diagram is not drawn accurately. 	
8 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 58°. B is a point on the same line, 60 m further from the lighthouse than A. The angle of elevation of the top of the lighthouse from B is 20°. Work out the height of the lighthouse. Give your answer to 1 decimal place.	
9 A shop mixes two types of mixed nuts. Type A costs £10.00 per kg and type B costs £6.00 per kg. They are mixed in the ratio A : B = 3 : 5. The mixture is sold for £13.50 per kg. Work out the percentage profit.	
10 OA = $\mathbf{a}$ and OB = $\mathbf{b}$. OP = $4\mathbf{b}$, OQ = $5\mathbf{a} + 7\mathbf{b}$ and OR = $25\mathbf{a} + 19\mathbf{b}$. (a) Show that P, Q and R lie on a straight line. (b) Work out the ratio PQ : QR in its simplest form.	