Day 64	S Tier 10-a-day
1 Here are five numbers: 2x, x + 2, 2x + 2, 3x, x. The mean of the five numbers is 17. (a) Work out the value of x. (b) Work out the range of the five numbers.	
2 Solve $\frac{x+1}{3} + \frac{x+5}{5} = 4$	
3 Given that $\sqrt{125} + \sqrt{45} = \sqrt{n}$, find the value of n.	
4 Triangle P has vertices A(2, 3), B(3, 2) and C(−1, 2). Triangle Q has vertices A'(1, 3), B'(3, 1) and C'(−5, 1). Q is an enlargement of P. Describe fully the single transformation that maps P onto Q.	
5 A trader buys a guitar and adds a 25% mark-up to get the selling price. In a sale the selling price is reduced by 30% to £280. Work out how much the shop paid for a guitar.	

Day 64 **S Tier 10-a-day**

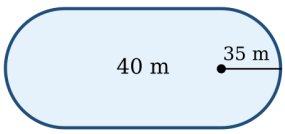
6 Use the iteration formula $x_{n+1} = 3 + \frac{3}{x_n}$ with $x_0 = 1$ (Calculator)
to work out x_1, x_2 and x_3.
Give each answer correct to 3 decimal places.

7 The table shows the monthly sales (thousands) over six periods.
The 3-point moving average centred on Mar is 17.
(a) Work out the value of x.
(b) Work out the 3-point moving average centred on Apr.

	Jan	Feb	Mar	Apr	May	Jun
Value	38	14	x	25	14	19

8 An alloy contains 89 g of copper and 452 g of lead.
The density of copper is 8.9 g/cm^3. The density of lead is 11.3 g/cm^3.
Work out the density of the alloy.

9 The diagram shows a running track made from a rectangle and two semicircles. (Calculator)
An athlete runs 5 complete laps around the track.
Work out the total distance run, to the nearest 10 metres.
The diagram is not drawn accurately.



10 The line $y = kx - 3$ is a tangent to the curve $y = x^2 - 2$.
Find the possible values of k.
Give any surds in their simplest form.