Day 98	S Tier 10-a-day
1 Write these numbers in order of size, starting with the smallest. 0.94, $\frac{13}{16}$, 72%, $\frac{2}{7}$	
2 A metal crate in the shape of a cuboid weighs 1110 N. Its smallest face has area 100 cm^2. Its largest face has area 1,500 cm^2. Pressure = force ÷ area Work out (a) the greatest pressure and (b) the least pressure the metal crate can exert on the ground, in N/m^2.	
3 The population of a village increased by 30% in 2023. In 2024 the population increased by a further 40%. Work out the overall percentage increase over the two years.	
4 Solve the simultaneous equations $3x + 6y = -39$ $-3x + 4y = -1$	
5 Work out $(4.9 \times 10^{-3}) + (8.7 \times 10^{-5})$ Give your answer in standard form.	

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6 Solve $x^2 < -8x - 15$	
7 A point A is on level ground in line with the base of a cliff. (Calculator) The angle of elevation of the top of the cliff from A is 58°. B is a point on the same line, 30 m further from the cliff than A. The angle of elevation of the top of the cliff from B is 48°. Work out the height of the cliff. Give your answer to 1 decimal place.	
8 Tariq and Callum live 120 km apart. At 10:00 they set off towards each other on the same road. Tariq drives at 80 km/h and Callum drives at 40 km/h. (a) At what time do they meet? (b) How far from Tariq's home do they meet?	
9 A solid cylinder of radius 6 cm and height 10 cm is melted down. The metal is used to make identical solid spheres of radius 3 cm. Work out the number of spheres that can be made. The volume of a sphere of radius r is $\frac{4}{3}\pi r^3$.	
10 An alloy is made by mixing 20 cm^3 of aluminium with 60 cm^3 of zinc. The density of aluminium is 2.7 g/cm^3. The density of zinc is 7.1 g/cm^3. Work out the density of the alloy.	