Day 361	S Tier 10-a-day
1 A bag contains balloons. $\frac{1}{5}$ of the balloons are pink and $\frac{3}{8}$ of the balloons are silver. The rest of the balloons, 34 of them, are gold. How many balloons are in the bag?	
2 A and B are points on the curve $y = -x^2 + 2x + 3$. The x coordinate of A is 3 and the x coordinate of B is 4. Work out the gradient of the line AB.	
3 Jess invests £20,000. The account pays compound interest of 3% a year for the first 2 years, then 2% a year for the next 2 years. Work out the total amount after 4 years, to the nearest penny. (Calculator)	
4 A metal crate in the shape of a cuboid weighs 1110 N. Its smallest face has area 800 cm^2. Its largest face has area 1,000 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.	
5 A is the point $(-3, 2)$ and B is the point $(-1, -2)$. Find an equation of the perpendicular bisector of AB. Give your answer in the form $ax + by = c$, where a, b and c are integers.	

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6 The price of a sofa is increased by 20%. The new price is then increased by 8%. The final price is £259.20. Work out the original price of the sofa.	
7 Make x the subject of $y = \frac{6x + 4}{x - 2}$	
8 The point P(1, −5) is reflected in the line y = x. The image is then reflected in the x-axis. (a) Write down the coordinates of the final image of P. (b) Describe fully the single transformation that is equivalent to these two transformations.	
9 $f(x) = \frac{4x + 2}{x - 4}$ where $x \neq 4$ (a) Show that ff(x) = x. (b) Write down $f^{-1}(x)$.	
10 The time taken for a journey is inversely proportional to the speed. The speed is increased by 150%. Work out the percentage change in the time taken for a journey.	