Day 256	A Level Maths: C Tier 10-a-day
1 A is (4, −3) and B is (0, −7). Find (a) the midpoint of AB, (b) the length of AB, as a surd in simplest form.	
2 A sector of a circle has radius 12 cm and angle 1.25 radians. Find (a) the arc length, (b) the perimeter of the sector.	
3 Write $x^2 - 4x + 1$ in the form $(x + p)^2 + q$, and state the coordinates of the minimum point of $y = x^2 - 4x + 1$.	
4 The curve $y = ab^x$ passes through (0, 3) and (4, 243). Find the values of a and b.	
5 X ~ B(n, p) has mean 10 and variance 7.5. Find n and p.	

Day 256	A Level Maths: C Tier 10-a-day
6 Find the exact value, in radians, of (a) $\arcsin(\frac{1}{2})$ (b) $\arctan(0)$	
7 A block is on the point of sliding down a rough plane inclined at α to the horizontal, where $\tan\alpha = \frac{8}{15}$. Find the coefficient of friction.	
8 X ~ B(20, 0.8). Find E(X) and Var(X).	
9 A particle moves with constant velocity $(4\mathbf{i} + 3\mathbf{j})$ m s^{-1}. It is at the point with position vector $(2\mathbf{i} + \mathbf{j})$ m at t = 0. Find the time when its position vector is $(14\mathbf{i} + 10\mathbf{j})$ m.	
10 A geometric sequence has first term 2 and common ratio 3. Find the first term that exceeds 100000.	