Day 164	A Level Maths: C Tier 10-a-day
1 A sequence is defined by $u_{n+1} = -2u_n + 6$, $u_1 = 5$. Find u_2, u_3 and u_4.	
2 A particle moves in a straight line with constant acceleration. Its speed increases from 1 m s^{-1} to 15 m s^{-1} as it travels 112 m. Find the acceleration.	
3 The discrete random variable X has $P(X = x) = k(3x + 3)$ for $x = 1, 2, 3, 4, 5$. (a) Find the value of k. (b) Find $P(X \geq 3)$.	
4 Use the trapezium rule with 4 strips to estimate $\int_0^6 2^x \, dx$, giving your answer to 3 significant figures.	
5 A particle moves with constant velocity $(-2\mathbf{i} + 3\mathbf{j})$ m s^{-1}. It is at the point with position vector $(4\mathbf{i})$ m at t = 0. Find the time when its position vector is $(-10\mathbf{i} + 21\mathbf{j})$ m.	

Day 164	A Level Maths: C Tier 10-a-day
6 An arithmetic series has first term 6 and common difference 5. Find the smallest n for which the sum of the first n terms exceeds 200.	
7 Use the substitution $u = x^2 + 1$ to find $\int \frac{4x}{x^2 + 1}\, dx$.	
8 Solve $x^2 - 10x + 3 = 0$, giving your answers in the form $p \pm \sqrt{q}$.	
9 $x = 4 \cos t$, $y = 5 \sin t$. Find dy/dx in terms of t, and its value when $t = \frac{\pi}{4}$.	
10 P(A) = 0.5, P(B) = 0.6 and $P(A \cap B) = 0.3$. (a) Find $P(A \mid B)$. (b) Are A and B independent? Give a reason.	