Day 240	A Level Maths: C Tier 10-a-day
1 A sequence is defined by $u_{n+2} = u_{n+1} + u_n$, with $u_1 = 3$ and $u_2 = 2$. Find u_6.	
2 Find (a) $\int \frac{4}{x}\,dx$ (b) $\int 8\sec^2 2x\,dx$	
3 In a histogram, the class 10 to 30 has frequency 50 and is drawn with a bar of height 2.5 cm. The class 30 to 35 has frequency 35. Find the height of its bar.	
4 Solve $x - 3 \geq 4$.	
5 Find the equation of the tangent to the curve $y = 5 \ln x + x$ at the point where $x = 1$.	

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6 A car starts from rest and accelerates uniformly at 2 m s^{-2} for 6 s, then travels at constant speed for a further 20 s. Find the total distance travelled.	
7 a = $-\mathbf{i} + \mathbf{j} - 2\mathbf{k}$ and b = $-3\mathbf{i} - 3\mathbf{j} + \mathbf{k}$. Find the angle between a and b, to 1 decimal place.	
8 A car of mass 1200 kg tows a caravan of mass 400 kg on a level road with acceleration 1 m s^{-2}. Resistances: 200 N on the car, 150 N on the caravan. Find the driving force and the tow bar tension.	
9 Find an equation of the line through A(6, 5) and B(7, 7), in the form ax + by + c = 0, where a, b and c are integers.	
10 Classify each variable as qualitative, discrete or continuous. (a) the height of a plant (b) the daily rainfall at a weather station (c) the number of siblings a student has	