Day 49	A Level Maths: C Tier 10-a-day
1 Solve $2x - 2 \geq -4x + 9$.	
2 The discrete random variable X has $P(X = x) = k(x^2 + 1)$ for $x = 0, 1, 2, 3$. (a) Find the value of k. (b) Find $P(X \geq 2)$.	
3 Solve $4 \cos x = 2$ for $0 \leq x \leq 2\pi$. Give your answers to 3 significant figures.	
4 A car's engine works at a constant rate of 30 kW. Find the driving force when the vehicle is moving at 30 m s^{-1}.	
5 Solve $\ln (x + 3) - \ln x = \ln 4$.	

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6 The continuous random variable X has probability density function f(x) = k(x + 3) for 0 ≤ x ≤ 3, and 0 otherwise. Find the value of k.	
7 Expand $(1 - 2x)^{-1}$ in ascending powers of x up to and including the term in x^2. State the range of values of x for which the expansion is valid.	
8 A car of mass 1500 kg tows a caravan of mass 400 kg on a level road with acceleration 0.25 m s^{-2}. Resistances: 200 N on the car, 100 N on the caravan. Find the driving force and the tow bar tension.	
9 The side x cm of a cube increases at 0.25 cm/s. Find the rate of increase of the volume when x = 3.	
10 Find the remainder when $x^3 - 2x^2 - 3x - 5$ is divided by (x − 3).	