Day 88	A Level Maths: B Tier 10-a-day
1 The mass X g of a flour bag is normal with mean 45, s.d. 8. Find, to 3 s.f., the probability a value is (a) more than 61, (b) between 61 and 69.	
2 Solve $-x \leq 2x - 7$.	
3 Find the exact value of sec 300°, giving your answer with a rational denominator.	
4 A particle moves along a straight line so that its displacement from O after t s is $s = 3t^3 + 4t^2$ metres. Find (a) the average velocity over the first 2 seconds, (b) the velocity at t = 2.	
5 Find the exact value of $\int_0^2 \frac{3}{3x+1}\,dx$, giving your answer in the form a ln b.	

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6 Find the set of values of x for which $3x + 5 > 5$ and $x^2 + x - 6 > 0$.	
7 The variables x and y satisfy $y = Ae^{kx}$. A graph of ln y against x is a straight line through (0, 0.5) and (4, 2.1). Find A to 3 s.f. and k.	
8 A particle moves in a straight line. At time t seconds its velocity is $v = 3t^2 - 2t + 2$ m s^{-1}. Find the distance moved between t = 2 and t = 5. (The particle does not change direction.)	
9 The scores on a test are normally distributed. $P(X < 60) = 0.0228$ and $P(X > 90) = 0.1587$. Find the mean and standard deviation (3 s.f.).	
10 Show that the equation $3x^2 - 8x + 10 = 0$ has no real roots.	