Day 221	A Level Maths: C Tier 10-a-day
1 Solve $1.5^{3x} = 10$. Give your answer to 3 significant figures.	
2 Sketch $y = 4 \times 2^x - 8$. Write down the equation of the asymptote and the coordinates where the curve meets the axes.	
3 A particle moves in a straight line with velocity $v = (9t^2 - 2t + 6)$ m s^{-1} at time t seconds. Find the distance travelled between t = 3 and t = 4 (the particle does not turn round).	
4 Solve $\ln (x + 12) - \ln x = \ln 5$.	
5 8 pairs of data on height and arm span have r = 0.84. Test, at the 5% significance level, for evidence of correlation. The critical value is ±0.7067.	

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6 The line l has equation $y = 2x + 3$. Find the equation of the line perpendicular to l that passes through $(-2, -1)$.	
7 A particle moves in a straight line. Its velocity at time t seconds is $v = (t^2 - 7t + 10)$ m s^{-1}. (a) Find the times when the particle is at rest. (b) Find its acceleration at the first of these times.	
8 Solve $-2\cos^2 x - \sin x + 2 = 0$ for $0° \leq x \leq 360°$.	
9 Describe the single transformation that maps the graph of $y = f(x)$ onto the graph of $y = \frac{1}{4}f(x)$.	
10 A bag has 4 red and 6 blue marbles. Two are taken at random without replacement. Find the probability that they are different colours.	