Day 35	A Level Maths: C Tier 10-a-day
1 The curve $y = ab^x$ passes through (0, 5) and (3, 625). Find the values of a and b.	
2 Here are 15 values: 19, 63, 58, 66, 61, 48, 28, 78, 57, 75, 59, 73, 30, 53, 65 Find the median and the interquartile range.	
3 Simplify $(4x^4)^3 \div 8x^{-2}$.	
4 $f(x) = e^x - 3x - 6$. Show that $f(x) = 0$ has a root between $x = 2$ and $x = 3$.	
5 Divide $f(x) = x^3 - x^2 + 4x + 12$ by $(x + 1)$. Find the quotient and the remainder.	

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6 θ is small and measured in radians. Use the small angle approximations to find an approximation for $\sin 5\theta \tan \theta$.	
7 A block of mass 10 kg is pulled along rough horizontal ground at constant speed by a horizontal force of 19.6 N. Take $g = 9.8$ m s^{-2}. Find the coefficient of friction between the block and ground.	
8 $X \sim B(25, p)$. H_0: $p = 0.6$, H_1: $p > 0.6$. Find the critical region for a test at the 5% significance level.	
9 A car starts from rest and accelerates uniformly at 4 m s^{-2} for 10 s, then travels at constant speed for a further 20 s. Find the total distance travelled.	
10 Express $\frac{2x - 3}{(x + 1)^2}$ in the form $\frac{A}{(x + 1)} + \frac{B}{(x + 1)^2}$.	