Day 113	A Level Maths: C Tier 10-a-day
1 Write down the exact value of tan 225°.	
2 A particle moves in a straight line with constant acceleration. Its speed increases from 8 m s^{-1} to 21 m s^{-1} as it travels 377 m. Find the acceleration.	
3 Write down the exact values of (a) cosec 60° (b) cosec 315°	
4 A circle has equation $(x + 1)^2 + (y + 2)^2 = 16$. Determine whether the point P(2, −4) is inside, outside or on the circle.	
5 X ~ B(25, p). H_0: p = 0.5, H_1: p > 0.5. Find the critical region for a test at the 5% significance level.	

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6 Express $\frac{2x}{(x+3)(x+1)}$ in the form $\frac{A}{x+3} + \frac{B}{x+1}$. Find the values of A and B.	
7 Divide $f(x) = x^3 + 7x^2 + 7x - 27$ by $(x + 4)$. Find the quotient and the remainder.	
8 A golf ball is projected from level ground with velocity $(9\mathbf{i} + 29.4\mathbf{j})$ m s^{-1} ($\mathbf{i}$ horizontal, $\mathbf{j}$ vertically up). Take g = 9.8 m s^{-2}. (a) Find the time of flight. (b) Find the greatest height reached.	
9 A population is $N(\mu, 6^2)$. H_0: $\mu = 190$, H_1: $\mu < 190$. A sample of 64 has mean $\bar{x} = 189.18$. Test at the 5% level. Critical value: $z = -1.645$.	
10 Use proof by exhaustion to show that $n(n + 1)(n + 2)$ is divisible by 6 for every integer n with $1 \leq n \leq 5$.	