Day 100	A Level Maths: C Tier 10-a-day
1 A particle of mass 2 kg hangs from a light string and is at rest. Taking g = 9.8 m s^{-2}, find the tension in the string.	
2 For 7 data pairs, with days of growth from 12 to 24, the regression line is H = 10 + 2d. Estimate plant height (cm) when d = 17 and comment on the reliability.	
3 A particle has initial velocity $(-2\mathbf{i} - 3\mathbf{j})$ m s^{-1} and constant acceleration $(-\mathbf{i} + \mathbf{j})$ m s^{-2}. Find its velocity after 5 s.	
4 $f(x) = (x - 3)^2 + 3$, $x \geq 0$. Find the range of f.	
5 By writing 105° as 60° + 45°, find the exact value of sin 105°.	

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6 The curve C has equation $y = x^3 - 2x^2 + 3x$. C is reflected in the y-axis. Find the equation of the image.	
7 Solve $\sin(x + 30°) = -\frac{\sqrt{3}}{2}$ for $0° \leq x \leq 360°$.	
8 The line $y = -4x + k$ is a tangent to the curve $y = x^2 + 2x + 3$. Find the value of k.	
9 Evaluate $\int_0^3 (x^2 + 3)\,dx$.	
10 The probability that it rains is 0.2. If so, the probability that Sam is late is 0.6; otherwise it is 0.5. Given that Sam is late, find the probability that it rains.	