Day 336	A Level Maths: C Tier 10-a-day
1 Sketch $y = 2(x + 2)(x + 1)(x - 2)$. Write down the coordinates of the points where the curve meets the axes.	
2 For events A and B, $P(A) = 0.3$, $P(B) = 0.3$ and $P(A \cup B) = 0.5$. (a) Find $P(A \cap B)$. (b) Find $P(A' \cap B')$.	
3 $y = x^3 - 3x + 3$. Find the coordinates of the stationary points and determine their nature.	
4 $X \sim N(25, 2^2)$. Given that $P(X < a) = 0.8$, find a to 3 s.f.	
5 $f(x) = 2x^3 - 4x^2 - 38x + 40$ (a) Show that $(x + 4)$ is a factor of $f(x)$. (b) Factorise $f(x)$ completely.	

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6 Solve $4\sin^2 x - 1 = 0$ for $0° \leq x \leq 360°$.	
7 A car starts from rest and moves in a straight line with constant acceleration 3 m s^{-2}. It travels 24 m. Find the time taken.	
8 The line $y = -3x + k$ is a tangent to the curve $y = x^2 - 5x - 1$. Find the value of k.	
9 A particle moves with constant velocity $(5\mathbf{i} + 12\mathbf{j})$ m s^{-1}. At time t = 0 its position vector is $(4\mathbf{i} - 2\mathbf{j})$ m. (a) Find its position vector when t = 6. (b) Find the distance it travels in 6 s.	
10 $f(x) = \ln x + x - 2$. Use the Newton-Raphson method with $x_0 = 2$ to find x_1, giving your answer to 3 decimal places.	