Day 334	A Level Maths: A Tier 10-a-day
1 P(A) = 0.6, P(B) = 0.25 and P(A ∩ B) = 0.1. Find (a) P(A ∪ B) (b) P(B | A) (c) P(A | B′)	
2 f(x) = −2x + 1 and g(x) = x^2 + 6. Solve gf(x) = 42.	
3 A particle moves on the x-axis. At time t s its acceleration is (6t − 18) m s^{-2}. When t = 0 it is at O with velocity −8 m s^{-1}. Find (a) its velocity when the acceleration is zero, (b) its displacement from O then.	
4 A group of 9 boys and 6 girls. A team of 4 is chosen at random. Find the probability that the team has exactly 1 of the girls.	
5 Solve cos 2θ − 2sin θ = −3 for −180° ≤ θ ≤ 180°.	

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6 A stone is dropped from rest from the top of a cliff. In the last 3 seconds before it hits the sea it falls 205.8 m. Find the height of the cliff. Take g = 9.8.	
7 (a) Express $\frac{-2x-5}{(x+4)^2}$ in the form $\frac{A}{x+4}+\frac{B}{(x+4)^2}$. (b) Hence find the exact value of $\int_0^4 \frac{-2x-5}{(x+4)^2}\,dx$.	
8 Solve $x(\sqrt{3}-2)=5-4\sqrt{3}$, writing x in the form $p+q\sqrt{3}$.	
9 A curve has equation $-x^2+4xy+2y=1$. Show that P$(-3,-1)$ lies on the curve and find the equation of the tangent at P in the form $ax+by+c=0$ with integer a, b, c.	
10 $f(x)=\frac{-11x+5}{(1-x)(1-3x)}$. (a) Express f(x) in partial fractions. (b) Hence expand f(x) up to x^2. (c) State the range of x for which the expansion is valid.	