Day 33	A Level Maths: C Tier 10-a-day
1 Solve $11 \leq 3x - 1 \leq 23$.	
2 A box of mass 5 kg rests on rough horizontal ground. The coefficient of friction is 0.4. Taking g = 9.8 m s^{-2}, find the maximum friction force that can act on the box.	
3 A is acute and $\sin A = \frac{15}{17}$. Find the exact values of sin 2A and cos 2A.	
4 A is $(-2, -6)$ and B is (8, 4). AB is a diameter of a circle. Find the equation of the circle.	
5 A ball is projected vertically upwards with speed 14 m s^{-1} from ground level. Taking g = 9.8 m s^{-2}, find the maximum height it reaches above the ground.	

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6 The table shows grouped data. Class: $0 \leq x < 10$; $10 \leq x < 20$; $20 \leq x < 30$; $30 \leq x < 40$ Frequency: 11, 5, 3, 8 Estimate the median, to 3 s.f.	
7 A curve has equation $x^2 + y^2 = 25$. Find dy/dx in terms of x and y, and hence the gradient at (3, 4).	
8 The probability that a machine is set up wrongly is 0.6. If so, the probability that an item is faulty is 0.7; otherwise it is 0.5. Given that an item is faulty, find the probability that a machine is set up wrongly.	
9 Solve $\sin x(2 \sin x - 1) = 0$ for $0° \leq x \leq 360°$.	
10 A sequence is defined by $u_{n+1} = -u_n - 4$, $u_1 = -1$. Find u_2, u_3 and u_4.	