Day 84	A Level Maths: C Tier 10-a-day
1 Find an equation of the line through A(0, −5) and B(−2, 5), in the form ax + by + c = 0, where a, b and c are integers.	
2 A car moving in a straight line increases its speed from 2 m s^{-1} to 4 m s^{-1} with constant acceleration 1 m s^{-2}. Find the time taken.	
3 The discrete random variable X has P(X = x) = k(x^2 + 2) for x = 0, 1, 2, 3, 4. (a) Find the value of k. (b) Find P(X ≥ 3).	
4 The curve y = x^2 and the line y = 2x meet at the origin and at P. Find the area enclosed between them.	
5 Solve −x + 1 ≤ −20.	

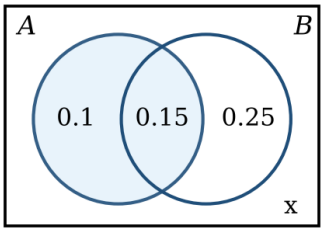
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6 Solve $5 \sin x = -2$ for $0 \leq x \leq 2\pi$.
Give your answers to 3 significant figures.

7 The line $y = 2x + k$ is a tangent to the curve $y = x^2 + 3$.
Find the value of k.

8 A particle is thrown vertically upwards with speed 19.6 m s^{-1}. Take g = 9.8 m s^{-2}.
(a) Find the time taken to reach its greatest height.
(b) Find the greatest height reached.

9 The Venn diagram shows probabilities for events A and B.
Find the value of x.



10 $\mathbf{a} = \mathbf{i} + 3\mathbf{j} + \mathbf{k}$ and $\mathbf{b} = -3\mathbf{i} + 2\mathbf{k}$.
Find the angle between a and b, to 1 decimal place.