Day 130	A Level Maths: C Tier 10-a-day
1 Solve $7 \leq 2x + 5 \leq 13$.	
2 $X \sim N(70, 5^2)$. Find $P(X < 80)$, giving your answer to 3 s.f.	
3 A has coordinates $(4, -1, -3)$ and B has coordinates $(-6, 10, -1)$. Find (a) the vector AB, (b) the distance AB, (c) the midpoint of AB.	
4 An arithmetic series has first term 2 and common difference 2. Find the smallest n for which the sum of the first n terms exceeds 600.	
5 A stone is projected from level ground with velocity $(5\mathbf{i} + 19.6\mathbf{j})$ m s^{-1} ($\mathbf{i}$ horizontal, $\mathbf{j}$ vertically up). Take g = 9.8 m s^{-2}. (a) Find the time of flight. (b) Find the greatest height reached.	

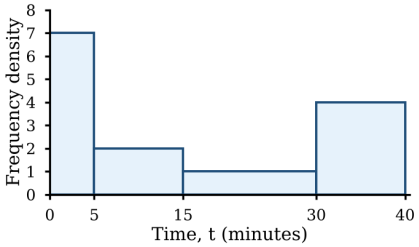
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6 A curve has parametric equations
$x = 4t - 5$, $y = 3t^2 + 1$.
Find the coordinates of the point where $t = -2$.

7 A stone is thrown vertically downwards at 6 m s^{-1} from the top of a cliff and hits the sea after 4 s. Taking $g = 9.8$ m s^{-2}, find the height of the cliff.

8 The curve $y = x^2$ and the line $y = 3x$ meet at the origin and at P.
Find the area enclosed between them.

9 The histogram shows the times, t minutes, taken by some people to complete a puzzle.
Find the number of people who took between 5 and 15 minutes.



10 $f(x) = 3 \sin x + 4 \cos x + 6$.
Write f(x) in the form $R \sin(x + \alpha) + 6$, with α in degrees to 1 d.p., and state the maximum value of f(x).