Day 194	A Level Maths: C Tier 10-a-day
1 In an arithmetic sequence $u_2 = 15$ and $u_{11} = 60$. Find the first term and the common difference.	
2 A car of mass 800 kg is driven along a straight horizontal road by a driving force of 1500 N against a constant resistance of 300 N. Find the acceleration of the car.	
3 The curve $y = ab^x$ passes through (0, 5) and $(2, \frac{5}{9})$. Find the values of a and b.	
4 Write $-2x^2 - 8x - 10$ in the form $a(x + p)^2 + q$.	
5 Solve $(\tan x + 1)(\tan x - 1) = 0$ for $0° \leq x \leq 360°$.	

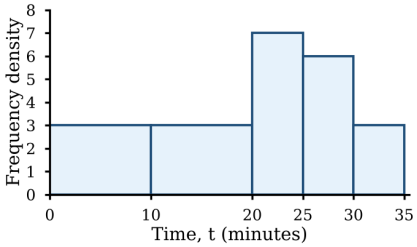
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6 $X \sim B(120, 0.3)$. Use a normal approximation to find $P(X \leq 39)$, to 3 s.f.

7 $x = 4t^2 + 1$, $y = 3t^3 - t$.
Find dy/dx in terms of t, and its value when $t = 1$.

8 A car moves in a straight line with constant acceleration 0.5 m s^{-2}. Its initial speed is 7 m s^{-1}. Find the distance travelled in 8 s.

9 The histogram shows the times, t minutes, taken by some people to complete a puzzle. Find the number of people who took between 25 and 35 minutes.



10 $f(x) = 2x^3 + 18x^2 + 52x + 48$
(a) Show that $(x + 2)$ is a factor of f(x).
(b) Factorise f(x) completely.