Day 158	A Level Maths: C Tier 10-a-day
1 Find $\int e^{2x+3}\,dx$.	
2 A is $(-3, -5)$ and B is $(-7, -3)$. Find (a) the midpoint of AB, (b) the length of AB, as a surd in simplest form.	
3 Of 150 people, 93 are women. 42 of the women and 31 of the men play an instrument. One person is chosen at random. Given that the person is a woman, find the probability that they play an instrument.	
4 A car decelerates uniformly from 12 m s^{-1} to rest in 6 s. Find (a) the deceleration, (b) the distance travelled while decelerating.	
5 Differentiate $y = 3 \tan x$ with respect to x.	

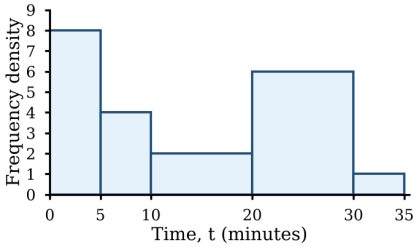
Day 158 **A Level Maths: C Tier 10-a-day**

6 A curve has parametric equations
$x = t + 1$, $y = t^2 + 4$.
Find a Cartesian equation of the curve.

7 Two forces of magnitudes 3 N and 4 N act on a small ring at right angles to each other. Find (a) the magnitude of the resultant, (b) the angle it makes with the 3 N force, to 1 d.p.

8 $f(x) = 21 \sin x + 20 \cos x + 6$.
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).

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 10 minutes.



10 Solve the simultaneous equations:
$y = x^2 + 3x - 3$, $y = 2x - 1$.