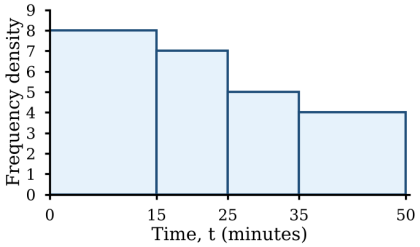
Day 306 **A Level Maths: C Tier 10-a-day**

1 Differentiate with respect to x:
(a) $4\,e^{3x}$
(b) $4\cos 3x$

2 Find the equation of the line parallel to $3x - 2y = 12$ that passes through (5, 5).
Give the answer in the form $y = mx + c$.

3 A line has equation $\mathbf{r} = \begin{pmatrix} -2 \\ 2 \\ 2 \end{pmatrix} + t\begin{pmatrix} -2 \\ 1 \\ -2 \end{pmatrix}$.
Show that the point $(-8, 5, -4)$ lies on the line.

4 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 50 minutes.



5 Express $\dfrac{-3x + 18}{(x - 2)(x + 2)}$ in partial fractions.

Day 306	A Level Maths: C Tier 10-a-day
6 A and B are mutually exclusive, with P(A) = 0.1 and P(B) = 0.2. (a) Find P(A ∪ B). (b) Find the probability that neither A nor B happens.	
7 A horizontal force of 27 N acts on a box of mass 3 kg on a smooth horizontal surface. Find the acceleration.	
8 Use a double angle formula to find $\int \sin^2 4x \, dx$.	
9 Find the set of values of x satisfying both $3x - 1 < -10$ and $x^2 + 3x - 10 < 0$.	
10 A body moves in a straight line. Its displacement from O at time t seconds is s metres, where $s = 2t^3 + 4t^2 + 5t$. Find its velocity when t = 1.	