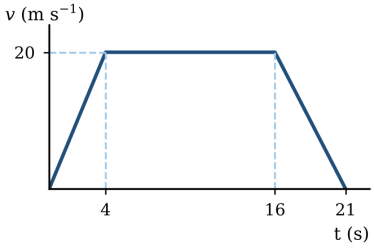
Day 280 **A Level Maths: C Tier 10-a-day**

1 The graph shows the velocity of a car over 21 seconds as it moves in a straight line.
(a) Find its acceleration in the first 4 s.
(b) Find the total distance travelled.

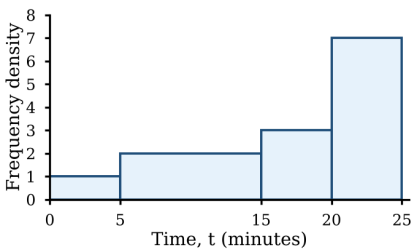


2 Find an equation of the line through A(−4, 1) and B(7, 3), in the form ax + by + c = 0, where a, b and c are integers.

3 Two cyclists start at the same time from points P and Q, 65 m apart, and cycle directly towards each other at constant speeds of 8 m s^{-1} and 5 m s^{-1}. Find the time until they meet.

4 Solve tan x = 1 for 0° ≤ x ≤ 360°.

5 The histogram shows the times, t minutes, taken by some people to complete a puzzle. Find the number of people who took between 0 and 5 minutes.



Day 280	A Level Maths: C Tier 10-a-day
6 Variables x and y satisfy $y = ab^x$. A graph of $\log_{10} y$ against x is a straight line with gradient 0.7 and intercept 1.2. Find a and b to 3 significant figures.	
7 Find the range of values of k for which $kx^2 + 8x + 1 = 0$ has real roots.	
8 Solve $\log x + \log (x - 4) = \log 21$, $x > 4$.	
9 $X \sim B(15, p)$. H_0: $p = 0.5$, H_1: $p > 0.5$. Find the critical region for a test at the 1% significance level.	
10 The line $y = -x + k$ is a tangent to the curve $y = x^2 + 5x + 2$. Find the value of k.	