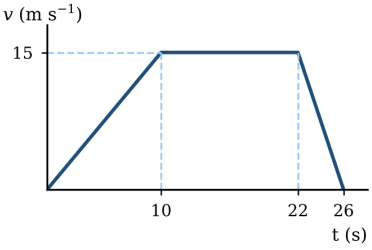
Day 62 **A Level Maths: C Tier 10-a-day**

1 Evaluate

$\int_0^3 (x^3 + 2)\,dx$.

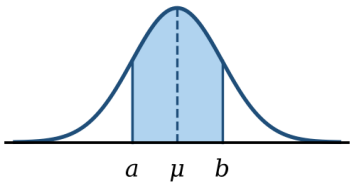
2 P(A) = 0.9, P(B) = 0.6 and P(A ∩ B) = 0.15.
(a) Find P(A | B).
(b) Are A and B independent? Give a reason.

3 The graph shows the velocity of a car over 26 seconds as it moves in a straight line.
(a) Find its acceleration in the first 10 s.
(b) Find the total distance travelled.



4 f(x) = 2x + 4 and g(x) = 4x − 1.
Solve fg(x) = 2.

5 The diagram shows the density of X ~ N(35, 2^2).
a and b are equal distances from the mean.
The shaded area is 0.42.
Find P(X > b).



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6 A is (6, 4) and B is (2, 10). Find the equation of the perpendicular bisector of AB, in the form ax + by = c with integer a, b and c.	
7 a = $-2\mathbf{i}$ and b = $4\mathbf{i} + 4\mathbf{j} + 4\mathbf{k}$. Find the angle between a and b, to 1 decimal place.	
8 Prove by contradiction that if n^2 is even, then n is even. Begin: "Assume n is odd, so n = 2k + 3 for an integer k."	
9 A particle has initial velocity $(-3\mathbf{i} + 4\mathbf{j})$ m s^{-1} and constant acceleration $(-2\mathbf{i} - 3\mathbf{j})$ m s^{-2}. Find its velocity after 5 s.	
10 Solve log x + log (x − 1) = log 20, x > 1.	