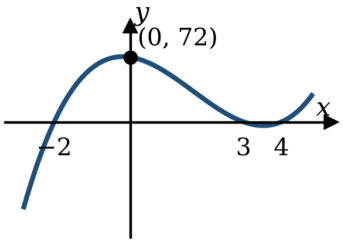
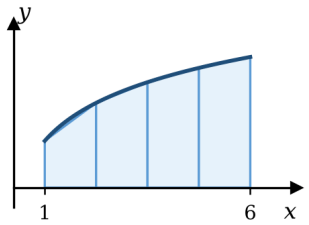
Day 354	A Level Maths: C Tier 10-a-day
1 Solve $7 \leq 4x - 5 < 31$.	
2 Write down the exact values of (a) cot 225° (b) cot 120°	
3 A bag has 3 red and 7 blue counters. Two are taken at random without replacement. Find the probability that at least one of them is red.	
4 The diagram shows the curve y = f(x), where f(x) is a cubic. Find f(x) in the form $k(x - a)(x - b)(x - c)$. 	
5 A radioactive sample has mass $M = 200\, e^{-0.1t}$ grams after t days. Find the time for the mass to halve, to 3 significant figures.	

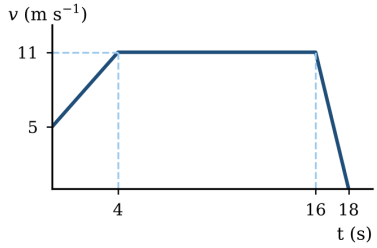
Day 354 **A Level Maths: C Tier 10-a-day**

6 Write $x^2 + 12x + 7$ in the form $(x + p)^2 + q$, and state the coordinates of the minimum point of $y = x^2 + 12x + 7$.

7 The diagram shows the curve $y = \ln x + 1$ from $x = 1$ to $x = 6$ divided into 4 strips of equal width.
Use the trapezium rule with these strips to estimate the shaded area to 3 s.f.



8 The graph shows the velocity of a car.
(a) Find the acceleration in the first 4 s.
(b) Find the deceleration in the last 2 s.
(c) Find the total distance travelled.



9 $X \sim B(120, 0.6)$. Use a normal approximation to find $P(X \leq 69)$, to 3 s.f.

10 A car travelling at 16 m s^{-1} brakes uniformly and comes to rest after travelling 40 m.
(a) Find the deceleration.
(b) Find the time taken to stop.