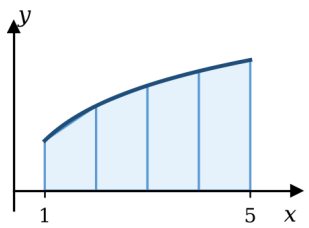
Day 82	A Level Maths: C Tier 10-a-day
1 Describe the single transformation that maps the graph of y = f(x) onto the graph of y = f(4x).	
2 Solve $e^{4x+2} = 12$. Give your answer to 3 significant figures.	
3 A is (−4, −1) and B is (0, 5). AB is a diameter of a circle. Find the equation of the circle.	
4 The diagram shows the curve y = ln x + 1 from x = 1 to x = 5 divided into 4 strips of equal width. Use the trapezium rule with these strips to estimate the shaded area to 3 s.f. 	
5 A uniform rod AB of mass 15 kg and length 4 m is supported by a pivot 0.25 m from A. A particle of mass m kg is attached at A and the rod rests horizontally in equilibrium. Find m.	

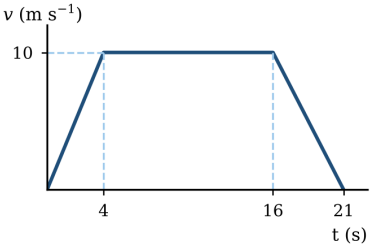
Day 82	A Level Maths: C Tier 10-a-day

6 A population is N(μ, 2^2). H_0: $\mu = 90$, H_1: $\mu < 90$.
A sample of 9 has mean $\bar{x} = 87.8$.
Test at the 5% level. Critical value: $z = -1.645$.

7 Expand $(1 + \frac{1}{2}x)^{-1}$ in ascending powers of x up to and including the term in x^2. State the range of values of x for which the expansion is valid.

8 X ~ B(10, p). H_0: $p = 0.2$, H_1: $p > 0.2$.
Find the critical region for a test at the 10% significance level.

9 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.



10 Solve $-\cos^2 x + \sin x + 1 = 0$
for $0° \leq x \leq 360°$.