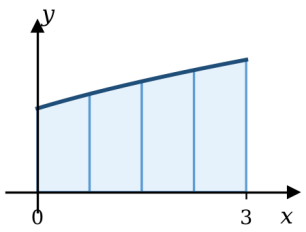
Day 284 **A Level Maths: C Tier 10-a-day**

1 The point P(−2, 4) lies on the curve y = f(x). Write down the coordinates of the image of P on
(a) y = f(x + 2) (b) y = −f(x)

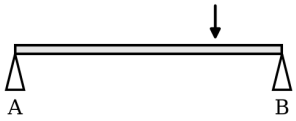
2 The diagram shows the curve $y = \sqrt{x + 2}$ from x = 0 to x = 3 divided into 4 strips of equal width. Use the trapezium rule with these strips to estimate the shaded area to 3 s.f.



3 A stone is thrown vertically upwards with speed 19.6 m s^{-1}. Take g = 9.8 m s^{-2}.
(a) Find the time taken to reach its greatest height.
(b) Find the greatest height reached.

4 Sketch $y = |x^2 - 9|$. Write down the coordinates where the graph meets the axes and the coordinates of the local maximum point.

5 $X \sim N(40, 8^2)$. Given that P(X > a) = 0.05, find a to 3 s.f.

Day 284	A Level Maths: C Tier 10-a-day
6 A uniform beam AB of mass 30 kg and length 6 m rests horizontally on supports at A and B. A load of mass 10 kg is placed on the beam 4.5 m from A. Take g = 9.8 m s^{-2}. Find the reaction at B.  	
7 12 pairs of data on height and arm span have r = −0.65. Test, at the 5% significance level, for evidence of negative correlation. The critical value is −0.4973.	
8 $f(x) = x^2 - 6$. Use the Newton-Raphson method with $x_0 = 2$ to find x_1 and x_2, giving your answer to 3 decimal places.	
9 The line $y = -2x + k$ is a tangent to the curve $y = x^2 - 6x$. Find the value of k.	
10 $f(x) = 24 \sin x + 7 \cos x + 5$. Write f(x) in the form $R \sin(x + \alpha) + 5$, with α in degrees to 1 d.p., and state the maximum value of f(x).	