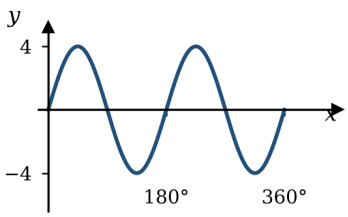
Day 137 **A Level Maths: C Tier 10-a-day**

1 Describe the single transformation that maps the graph of y = f(x) onto the graph of y = f(x) + 5.

2 The diagram shows the graph of y = a sin bx for 0° ≤ x ≤ 360°, where a and b are positive integers.
Find a and b.



3 A particle P moves in a straight line. Its displacement from O at time t seconds is s metres, where $s = 2t^3 + 2t^2 - t$.
Find its velocity when t = 4.

4 Solve $\cos 2x = \frac{1}{2}$ for 0° ≤ x ≤ 180°.

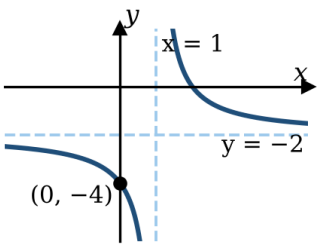
5 $f(x) = x^2 - 4$, $x \geq 0$.
Find $f^{-1}(x)$ and state its domain.

Day 137 **A Level Maths: C Tier 10-a-day**

6 $x_{n+1} = \frac{5}{x_n^2 + 1} + 1$, with $x_0 = 2$.

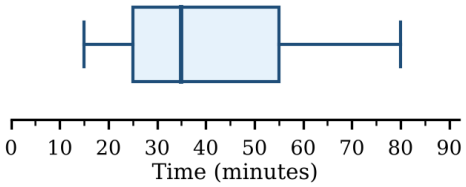
Find x_1, x_2 and x_3 to 3 decimal places.

7 The diagram shows the graph of $y = \frac{k}{x - a} + c$ with its asymptotes. Find the values of a, c and k.



8 The box plot summarises the journey times, in minutes, of some commuters.

Find the range and the interquartile range.



9 Car A passes a point O at constant speed 10 m s^{-1}.

At that instant car B starts from rest at O with constant acceleration 4 m s^{-2} in the same direction. Find the time when B catches up A.

10 A population is $N(\mu, 6^2)$. H_0: $\mu = 30$, H_1: $\mu \neq 30$.

A sample of 16 has mean $\bar{x} = 27.6$.

Test at the 5% level. Critical value: $z = \pm 1.96$.