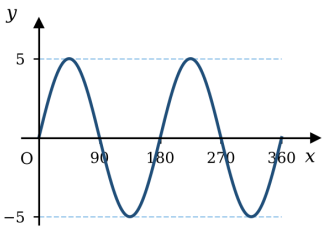
Day 272 **IGCSE 10-a-day**

1 n is an integer.
Work out the sum of all the values of n that satisfy
$-2 < -n - 3 < 4$

2 The diagram shows the graph of $y = a \sin bx$, where a and b are positive integers.
(a) Write down the value of a and the value of b.
(b) Work out the value of y when $x = 255°$.



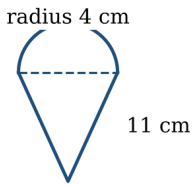
3 $y = -8x^{5/2} - 2x^{3/2}$
Find $\frac{dy}{dx}$. Give each term of your answer in the form ax^n.

4 (a) Write $x^2 + 10x + 30$ in the form $(x + p)^2 + q$
(b) Write down the coordinates of the turning point of the curve $y = x^2 + 10x + 30$

5 The tangents at two points A and B on the curve $y = 2x^3 - 3x^2 - 6x - 6$ are parallel to the line $2y + 12x = 7$.
Find the coordinates of A and B.

Day 272 **IGCSE 10-a-day**

6 A solid is made from a cone of height 11 cm and a hemisphere. Both have radius 4 cm. Work out the total volume of the solid. Give your answer in terms of π.



7 The price of a sofa is increased by 50%. Later the new price is reduced by 15% in a sale.
The sale price is £752.25.
Work out the price before the increase.
(Calculator)

8 The curve $y = x^3 + ax^2 + bx + 4$ has stationary points at $x = -4$ and $x = -2$.
Find the values of a and b.

9 Write $\frac{16^{n-2} \times 4^{n-2}}{4^n}$ in the form 2^{an+c}
where a and c are integers.

10 Work out $1.4 \times 10^{-4} + 4.8 \times 10^{-6}$.
Give your answer in standard form.