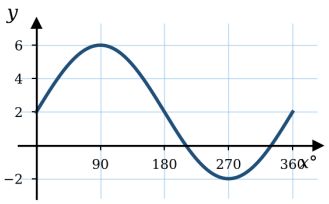
Day 138	IGCSE 10-a-day
1 Work out the value of $(a - b)^2 - (a + b)^2$ when $a = -3$, $b = -3$ and $c = 2$.	
2 $f(x) = ax + b$, where a and b are constants. $f(0) = -9$ and $f(1) = -6$. Find the value of a and the value of b.	
3 The ratio of juniors to seniors in a school is 3 : 2. 45% of the juniors and 40% of the seniors play a sport. What percentage of all of these students play a sport?	
4 Solve the simultaneous equations $4x + 2y = -14$ $x + 6y = 24$	
5 $y = -6x^{5/2} + 2x - \frac{2}{\sqrt{x}}$ Find $\frac{dy}{dx}$. Give each term of your answer in the form ax^n.	

Day 138 **IGCSE 10-a-day**

6 The diagram shows the graph of $y = a \sin bx° + c$ for $0 \leq x \leq 360$.
a, b and c are integers.
Find the values of a, b and c.



7 A curve has equation $y = x^4 - 8x^2 - 4$.
Find the coordinates of the stationary points of the curve and determine the nature of each.

8 Lena puts £4,000 into a savings account.
The account pays 12% compound interest each year.
After how many whole years will there first be more than £6,000 in the account? (Calculator)

9 $f(x) = x^3 + kx^2 + 75x + 3$, where k is a constant.
Given that f is an increasing function for all values of x, find the range of possible values of k.

10 ABCD is a rectangle with AB = 12 cm and AD = 12 cm.
A point P inside the rectangle is such that AP ≤ 10 cm and P is nearer to AB than to AD.
Work out the area of the region in which P can lie. Give your answer in terms of π.