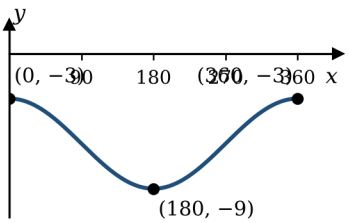
Day 117	S Tier 10-a-day

1 Here are five numbers: $3x + 2$, $x + 1$, $x + 5$, $x + 4$, $3x - 1$.
The mean of the five numbers is 13.
(a) Work out the value of x.
(b) Work out the median of the five numbers.

2 The diagram shows the graph of $y = a \cos x° + c$ for $0 \leq x \leq 360$.
Some points on the graph are labelled.
Find the value of a and the value of c.



3 9 workers can build a wall in 20 days.
After 6 days, 6 of the workers leave. The rest carry on working at the same rate.
How many more days does it take to finish?

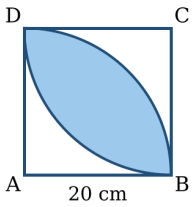
4 Given that $\frac{3^4 \times 27^2}{3^3} = 3^n$,
find the value of n.

5 Callum, Dina and Maya share some sweets.
Callum : Dina = 9 : 3
Dina : Maya = 6 : 3
(a) Work out the ratio Callum : Dina : Maya.
(b) They share 99 sweets altogether. How many sweets does Dina get?

Day 117	S Tier 10-a-day

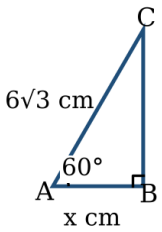
6 Simplify fully $\frac{x^2 + 7x + 10}{x^2 - 2x - 8}$

7 ABCD is a square of side 20 cm.
BD is an arc of a circle with centre A and an arc of a circle with centre C.
Work out the area of the shaded region. Give your answer in terms of π.



8 A van is worth £1,200 when new.
Its value decreases by 8% each year.
After how many whole years will it first be worth less than £800? (Calculator)

9 ABC is a right-angled triangle.
Work out the exact value of x. Give your answer in its simplest form.
The diagram is not drawn accurately.



10 $f(x) = \frac{2x + 4}{2x - 4}$

(a) Find $f^{-1}(x)$.

(b) Find the value of $f^{-1}(2)$.