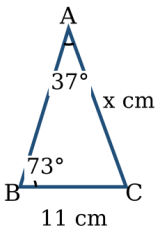
Day 77 **S Tier 10-a-day**

1 ABC is an isosceles triangle with AB = AC.
Angle BAC = (2x − 10)°
Angle ABC = (3x + 35)°
(a) Work out the value of x.
(b) Work out the size of angle BAC.

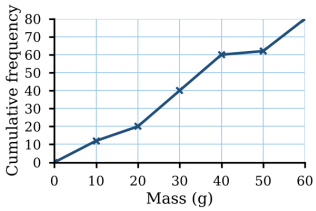
2 Work out $(7.95 \times 10^4) \div (1.5 \times 10^2)$
Give your answer in standard form.

3 The ratio of juniors to seniors in a school is 3 : 2.
45% of the juniors and 70% of the seniors play a sport.
What percentage of all of these students play a sport?

4 The diagram shows triangle ABC. (Calculator)
Work out the length of AC. Give your answer correct to 1 decimal place.
The diagram is not drawn accurately.



5 The cumulative frequency graph gives information about the masses of 80 apples picked from a tree.
(a) Find an estimate for the median and the interquartile range.
(b) Estimate how many of the 80 had a mass greater than 35.



Day 77	S Tier 10-a-day

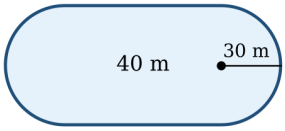
6 Solve $8^{2x} = 16^{x+5}$

7 (a) Show that the equation $x^2 - 8x - 22 = 0$ can be rearranged to give $x = 8 + \frac{22}{x}$

(Calculator)

(b) Use the iteration formula $x_{n+1} = 8 + \frac{22}{x_n}$ with $x_0 = 10$ to work out x_1 and x_2. Give each answer correct to 3 decimal places.

8 The diagram shows a running track made from a rectangle and two semicircles.
(a) Work out the total length of the boundary of the track.
(b) Work out the area enclosed by the track.
Give your answers in terms of π.
The diagram is not drawn accurately.



9 The line $y = kx - 3$ is a tangent to the curve $y = x^2 + 5$.
Find the possible values of k.
Give any surds in their simplest form.

10 A spinner numbered 1 to 4 and a spinner numbered 1 to 5 are each thrown once. The first score and the second score are recorded.
(a) Work out the probability that the product is even.
(b) Given that the first number is greater than the second, work out the probability that the product is even.