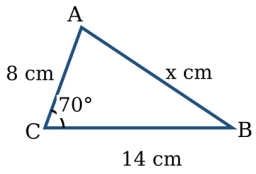
Day 120	S Tier 10-a-day

1 Given that $\frac{16 \times 8}{4^3} = 2^n$,

find the value of n.

2 The diagram shows triangle ABC. (Calculator)
(a) Work out the length of AB, marked x, to 1 decimal place.
(b) Work out the area of triangle ABC to 3 significant figures.
The diagram is not drawn accurately.



3 A church bell rings every 6 minutes.
Another bell rings every 20 minutes.
A third bell rings every 24 minutes.
They all ring together at 8:00 am.
How many times do they all ring together between 8:00 am and 3:00 pm, including both 8:00 am and 3:00 pm if they do?

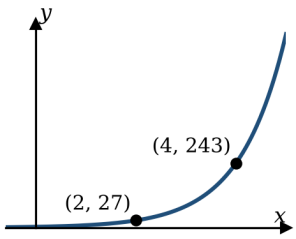
4 Triangle ABC has AB = 16 cm and BC = 8 cm.
The area of triangle ABC is $32\sqrt{3}$ cm^2.
Angle ABC is obtuse.
Work out the size of angle ABC.
Do not use a calculator.

5 Solve $2x^2 + 9x + 1 = 0$
Give your answers in surd form.

Day 120 **S Tier 10-a-day**

6 Nadia and Tariq live 130 km apart.
At 10:00 they set off towards each other on the same road.
Nadia drives at 45 km/h and Tariq drives at 85 km/h.
(a) At what time do they meet?
(b) How far from Nadia's home do they meet?

7 The diagram shows the graph of $y = ka^x$, where k and a are constants and $a > 0$.
The curve passes through the points (2, 27) and (4, 243).
Find the value of k and the value of a.



8 A is the point $(6, -5)$ and B is the point $(-2, -3)$.
Find an equation of the perpendicular bisector of AB.
Give your answer in the form $ax + by = c$, where a, b and c are integers.

9 Work out $(7 \times 10^1)^2$
Give your answer in standard form.

10 The table gives information about the masses of some eggs.
An estimate for the mean is 47.2.
Work out the value of x.

Mass, m (g)	Frequency
$10 < m \leq 30$	20
$30 < m \leq 50$	6
$50 < m \leq 70$	x
$70 < m \leq 90$	14