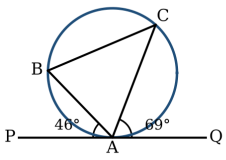
Day 99 **S Tier 10-a-day**

1 Write $10^5 \times 14^4$ as a product of powers of prime numbers.

2 The table gives information about the times taken by some people to travel to work.
An estimate for the mean is 23.
Work out the value of x.

Time, t (minutes)	Frequency
$0 < t \leq 10$	5
$10 < t \leq 20$	x
$20 < t \leq 30$	17
$30 < t \leq 40$	12

3 PAQ is a tangent to the circle at A. B and C are points on the circle. Angle PAB = 46° and angle CAQ = 69°.
(a) Work out the size of angle ABC.
(b) Work out the size of angle ACB.
The diagram is not drawn accurately.



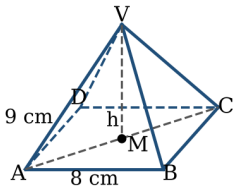
4 A car travels the first half of a journey at 30 km/h.
It travels the second half of the same journey at 60 km/h.
Work out the average speed for the whole journey.

5 Solve $2 \tan x° - 3 = -1$ for $0 \leq x \leq 360$

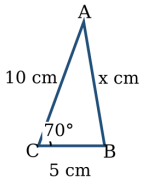
Day 99 **S Tier 10-a-day**

6 Solve $3^{2x+2} = 27^4$

7 VABCD is a pyramid on a square base. V is directly above the centre M.
(a) Work out the height VM of the pyramid.
(b) Work out the volume of the pyramid.
The diagram is not drawn accurately.



8 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.



9 Show that $\sqrt{43 + 30\sqrt{2}} = 5 + 3\sqrt{2}$

10 Write $\frac{7}{x-2} - \frac{x+3}{x+4}$ as a single fraction.
Simplify the numerator.