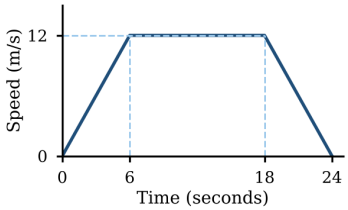
Day 245 **S Tier 10-a-day**

1 A circular arc has a chord AB of length 16 cm. The greatest distance between the chord and the arc is 2 cm.
Work out the radius of the circle.

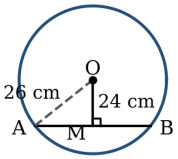
2 The graph shows the speed of a car during 24 seconds.
(a) Work out the acceleration during the first 6 seconds.
(b) Work out the average speed over the whole 24 seconds.



3 Solve $2x^2 + 2x - 40 < 0$

4 Write $\sqrt{50} + \sqrt{18} + \sqrt{72}$ in the form $a\sqrt{2}$ where a is an integer.

5 AB is a chord of a circle, centre O. M is the midpoint of AB. (Calculator)
(a) Work out the length of the chord AB.
(b) Work out angle AOB, to 1 decimal place.
The diagram is not drawn accurately.



Day 245 **S Tier 10-a-day**

6 Solve the simultaneous equations
$y = x^2 - 4x - 1$
$y = 2x - 6$

7 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 sum is a multiple of 3.
(b) Given that the first number is greater than the second, work out the probability that the sum is a multiple of 3.

8 Write $\frac{16^{n+2} \times 2^{n-3}}{4^n}$ in the form 2^{an+c}
where a and c are integers.

9 $f(x) = -x - 3$ and $g(x) = x^2 - 6$
Solve $fg(x) = gf(x)$

10 The table gives information about the times of some people.
Work out an estimate for the mean time.
Give your answer correct to 1 decimal place.
(Calculator)

Time, t (minutes)	Frequency density
$0 < t \leq 5$	1
$5 < t \leq 10$	1.8
$10 < t \leq 20$	1.5
$20 < t \leq 40$	0.7