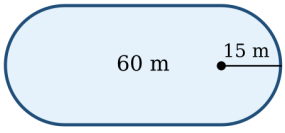
Day 356	S Tier 10-a-day

1 The interior angles of a pentagon are
$x°$, $(x + 5)°$, $(x + 10)°$, $(x - 25)°$, $(x + 25)°$
(a) Work out the value of x.
(b) Work out the size of the largest angle.

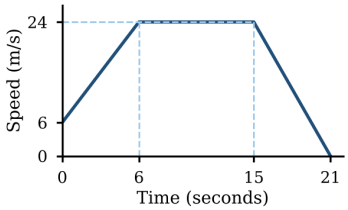
2 The 5-digit number 2239k is a multiple of 4.
k is a single digit.
Find all the possible values of k.

3 Sparkle Cleaners has a call-out fee of £6 plus £4.50 per hour.
Fresh Start has a call-out fee of £30.50 plus £1 per hour.
(a) Work out the number of hours for which the two costs are the same.
(b) Which is cheaper for 10 hours, and by how much?

4 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.



5 The graph shows the speed of a car during 21 seconds.
(a) Work out the acceleration during the first 6 seconds.
(b) Work out the average speed over the whole 21 seconds.



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6 Simplify fully $\frac{x^2 + 10x + 21}{x^2 + 5x} \times \frac{x^2 - 4x}{x + 7}$

7 Solve $3^{3x + 1} = 9^{2x + 1}$

8 Solve the simultaneous equations
$y = x^2 + 4x - 4$
$y = 5x - 4$

9 A population is decreased by x% in one year and then decreased by a further x% the next year.
Over the two years the population decreases by 75%.
Work out the value of x.

10 The histogram shows the lengths of leaves collected from a tree.
(a) Work out the total number of leaves.
(b) Estimate the number of leaves with a length between 20 cm and 55 cm.

