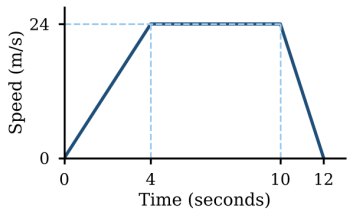
Day 317 **IGCSE 10-a-day**

1 The equation of a curve is $y = -4x^2 - 5x - \frac{12}{x}$.
Work out the gradient of the curve at the point where $x = -2$.

2 Simplify $\frac{1}{2+\sqrt{2}} - \frac{1}{2-\sqrt{2}}$
Give your answer with a rational denominator.

3 The graph shows the speed of a car during 12 seconds.
(a) Work out the acceleration during the first 4 seconds.
(b) Work out the average speed over the whole 12 seconds.

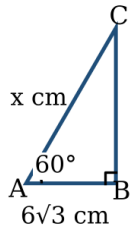


4 The number m is 38,000 correct to the nearest 1000.
Write down the error interval for m.

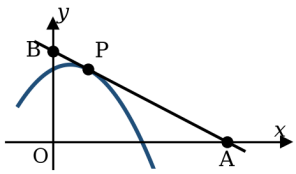
5 $f(x) = 6x^{1/2} - 4x^{-1/2}$
Find $f'(x)$ and work out the value of $f'(4)$.

Day 317 **IGCSE 10-a-day**

6 ABC is a right-angled triangle.
Work out the exact value of x. Give your answer in its simplest form.
The diagram is not drawn accurately.



7 The diagram shows the curve $y = -x^2 + x + 4$ and the tangent at P(1, 4), meeting the axes at A and B.
(a) Find an equation of the tangent at P.
(b) Work out the area of triangle OAB.



8 Here are the first five terms of a sequence.
$-1, 21, 79, 191, 375$
The nth term is of the form $an^3 + bn + c$.
Find the values of a, b and c.

9 Show that the equation $x^2 + 3kx - 7 = 0$ has two distinct real solutions for all values of k.

10 A car is worth £5,000 when new.
Its value decreases by 10% each year.
After how many whole years will it first be worth less than £3,750? (Calculator)