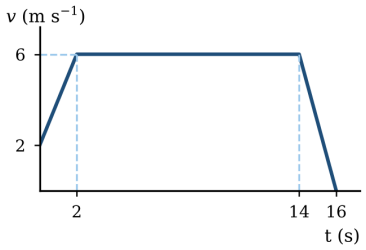
Day 298 **A Level Maths: C Tier 10-a-day**

1 The graph shows the velocity of a runner.
(a) Find the acceleration in the first 2 s.
(b) Find the deceleration in the last 2 s.
(c) Find the total distance travelled.



2 Simplify $(4x^3)^2 \div 8x^4$.

3 The values x are coded using $y = (x - 100) \div 10$.
The coded values have mean $\bar{y} = 2$ and standard deviation 1.5.
Find the mean and standard deviation of x.

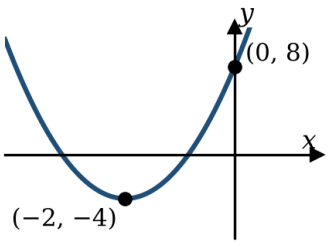
4 Expand and simplify $(6 + \sqrt{7})(6 - \sqrt{7})$.

5 X ~ B(13, 0.5). Find $P(5 \leq X \leq 8)$, giving your answer to 3 s.f.

Day 298 **A Level Maths: C Tier 10-a-day**

6 Express $\frac{7x + 20}{(x + 2)(x + 4)}$ in the form $\frac{A}{x + 2} + \frac{B}{x + 4}$.
Find the values of A and B.

7 The diagram shows a sketch of a quadratic curve.
Find its equation in the form $y = a(x - p)^2 + q$.



8 Solve $7^{2x} = 10$.
Give your answer to 3 significant figures.

9 A particle moves in a straight line. Its velocity at time t seconds is v m s^{-1}, where $v = t^2 - 4t + 5$.
(a) Find its acceleration when t = 1.
(b) Find the time when its acceleration is zero.

10 Variables x and y satisfy $y = ax^n$. A graph of $\log_{10} y$ against $\log_{10} x$ is a straight line with gradient $\frac{1}{2}$ and intercept 0.8.
Find n and a, giving a to 3 significant figures.