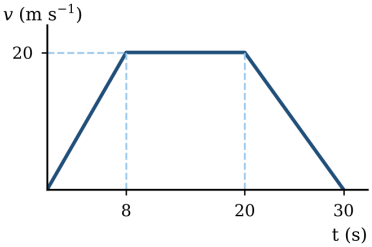
Day 125 **A Level Maths: C Tier 10-a-day**

1 Write $\sqrt{640}$ in the form $p\sqrt{q}$, where q is an integer as small as possible.

2 X is the number of tosses of a fair coin needed to get the first head.
Can X be modelled by a binomial distribution?
Give a reason.

3 Write down the exact values of
(a) sec 120° (b) cosec 120°

4 The graph shows the velocity of a train over 30 seconds as it moves in a straight line.
(a) Find its acceleration in the first 8 s.
(b) Find the total distance travelled.



5 A line has equation $\mathbf{r} = \begin{pmatrix} 3 \\ -1 \\ 3 \end{pmatrix} + t\begin{pmatrix} -1 \\ 3 \\ -1 \end{pmatrix}$.
Find the coordinates of the point on the line where $t = -1$.

Day 125	A Level Maths: C Tier 10-a-day
6 A particle moves in a straight line with velocity v = $(6t^2 + 6t + 6)$ m s^{-1} at time t seconds. Find the distance travelled between t = 3 and t = 6 (the particle does not turn round).	
7 The line $y = 4x + k$ is a tangent to the curve $y = x^2 + 8x - 1$. Find the value of k.	
8 X ~ B(30, p). H_0: p = 0.6, H_1: p < 0.6. Find the critical region for a test at the 1% significance level.	
9 Solve $-4\cos^2 x + 2\sin x + 4 = 0$ for $0° \leq x \leq 360°$.	
10 Find the sum of the first 12 terms of the series $-8 - 2 + 4 + 10 + ...$	