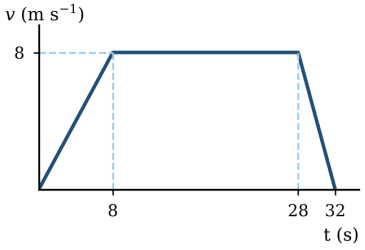
Day 285	A Level Maths: C Tier 10-a-day
1 $x_{n+1} = \ln(x_n + 2) + 1$, with $x_0 = 2$. Find x_1, x_2 and x_3 to 3 decimal places.	
2 X ~ B(7, 0.2). Find P(X = 1), giving your answer to 3 s.f.	
3 Three forces $(-3\mathbf{i})$ N, $(4\mathbf{i} - 3\mathbf{j})$ N and $(p\mathbf{i} + q\mathbf{j})$ N act on a particle which is in equilibrium. $\mathbf{i}$ and $\mathbf{j}$ are perpendicular unit vectors. Find the values of p and q.	
4 $x = 2\cos t$, $y = 2\sin t$. Find dy/dx in terms of t, and its value when $t = \frac{\pi}{4}$.	
5 A is $(-3, -1)$ and B is (5, 3). AB is a diameter of a circle. Find the equation of the circle.	

Day 285 **A Level Maths: C Tier 10-a-day**

6 By writing 75° as 45° + 30°, find the exact value of sin 75°.

7 The graph shows the velocity of a lift over 32 seconds as it moves in a straight line.
(a) Find its acceleration in the first 8 s.
(b) Find the total distance travelled.



8 Expand $(1 + 2x)^{\frac{1}{2}}$ in ascending powers of x up to and including the term in x^2. State the range of values of x for which the expansion is valid.

9 X ~ B(50, 0.2). Use a normal approximation to find P(X ≤ 7), to 3 s.f.

10 The line $y = -x + k$ is a tangent to the curve $y = x^2 + x + 3$.
Find the value of k.