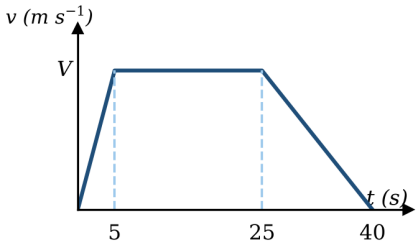
Day 25	A Level Maths: B Tier 10-a-day
1 A cyclist moves in a straight line with constant acceleration. Its initial speed is 0 m s^{-1}, its final speed is 50 m s^{-1} and it travels 250 m. Find the acceleration.	
2 Solve $-x^2 - 2x \leq -3$.	
3 The curve C has equation $y = (x + 2)e^{4x}$. Find the equation of the normal to C at the point where $x = 0$, in the form $y = mx + c$.	
4 Simplify $\frac{3}{\sqrt{3}} - \sqrt{27}$, giving your answer in the form $k\sqrt{3}$.	
5 Packet masses are normal, s.d. 5 g. Claimed mean 50 g; 50 packets have mean 49 g. Test at the 5% level whether the true mean differs from 50.	

Day 25	A Level Maths: B Tier 10-a-day
6 The line segment AB is a diameter of a circle, where A is (6, 1) and B is (4, −3). Find an equation of the circle in the form $(x - a)^2 + (y - b)^2 = k$.	
7 A lift travels between floors in 40 s. The speed-time graph is a trapezium, with the maximum speed V m s^{-1} held from t = 5 to t = 25. The floors are 180 m apart. Find V, and the deceleration in the final stage. 	
8 A car's value, £V, after t years is given by $V = 20000 \times 0.9^t$. Find (a) the value after 3 years, (b) when it first falls below £10000, to 3 s.f.	
9 The continuous random variable X has pdf f(x) = $\frac{2x}{36}$ for $0 \leq x \leq 6$, and 0 otherwise. (a) Find P(X > 5). (b) Find the median of X, to 3 significant figures.	
10 £1000 is invested at 20% compound interest per year. Find the least whole number of years for the investment to exceed £5000.	