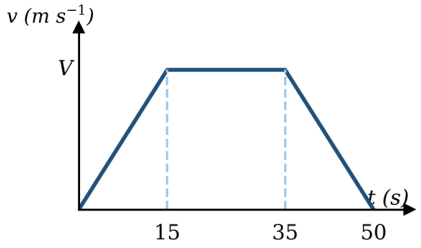
Day 349	A Level Maths: B Tier 10-a-day
1 Evaluate $(\frac{32}{243})^{\frac{1}{5}}$.	
2 A sector of a circle has area 115.2 cm^2 and angle 1.6 radians. Find (a) the radius, (b) the perimeter of the sector.	
3 A lift travels between floors in 50 s. The speed-time graph is a trapezium, with the maximum speed V m s^{-1} held from t = 15 to t = 35. The floors are 525 m apart. Find V, and the deceleration in the final stage. 	
4 Prove that $-2x^2 - 12x - 27 < 0$ for all real values of x.	
5 Regression line (x from 2 to 18): y = 60 − 2.5x. x is the temperature, y the gas used per day. (a) Interpret the gradient. (b) Estimate y when x = 20 and comment.	

Day 349	A Level Maths: B Tier 10-a-day
6 Find the coefficient of x^2 in the expansion of $(1 + 4x)^9$.	
7 The continuous random variable X has pdf f(x) = kx for $0 \leq x \leq 6$, and 0 otherwise. (a) Find the value of k. (b) Find P(X > 1). (c) Find E(X).	
8 Use integration by parts to find the exact value of $\int_0^1 (x + 2)e^{3x}\,dx$.	
9 A trunk of mass 10 kg is dragged at constant speed along rough horizontal ground by a rope inclined at angle α above the horizontal, where $\cos\alpha = \frac{3}{5}$. The coefficient of friction is 0.5. Take g = 9.8 m s^{-2}. Find the tension in the rope.	
10 Solve $4\sin^2 x + 7\sin x + 3 = 0$ for $0 \leq x \leq 360°$, giving answers to 1 d.p. where necessary.	