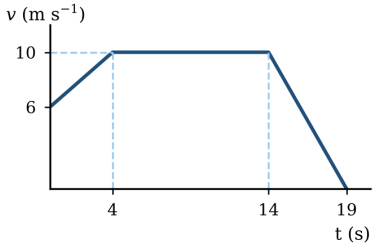
Day 11	A Level Maths: C Tier 10-a-day
1 A boat moves in a straight line with constant acceleration 1.5 m s^{-2}. Its initial speed is 7 m s^{-1}. Find the distance travelled in 8 s.	
2 Find $\int (3x + 2)^3 \, dx$.	
3 The graph shows the velocity of a runner. (a) Find the acceleration in the first 4 s. (b) Find the deceleration in the last 5 s. (c) Find the total distance travelled. 	
4 A circle has centre (−3, −3) and passes through the point (−2, −3). Find the equation of the circle.	
5 The discrete random variable X has this distribution. x: 0, 4, 5, 7 P(X = x): 0.1, 0.2, 0.5, 0.2 Find E(X) and Var(X).	

Day 11	A Level Maths: C Tier 10-a-day
6 Variables x and y satisfy $y = ab^x$. A graph of $\log_{10} y$ against x is a straight line with gradient 0.2 and intercept 0.5. Find a and b to 3 significant figures.	
7 An arithmetic series has first term 9, last term 78 and 24 terms. Find the sum of the series.	
8 X ~ B(200, 0.5). Use a normal approximation to find $P(X \leq 93)$, to 3 s.f.	
9 $f(x) = x^3 - 5x^2 - 2x + 24$ (a) Show that $(x - 4)$ is a factor of f(x). (b) Factorise f(x) completely.	
10 Use a small angle approximation to estimate cos 0.2, where 0.2 is in radians.	