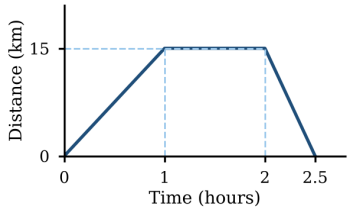
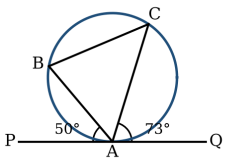
Day 13	IGCSE 10-a-day
1 $y = x(x - 3)(3x - 1)$ Find $\frac{dy}{dx}$.	
2 ABC is an isosceles triangle with AB = AC. Angle BAC = $(5x - 20)°$ Angle ABC = $(2x + 28)°$ (a) Work out the value of x. (b) Work out the size of angle BAC.	
3 $f(x) = -2x + 2$. (a) Find $f^{-1}(x)$. (b) Find $f^{-1}(8)$.	
4 The graph shows Hassan's cycle ride to a café and back. (a) Work out Hassan's speed on the way back. (b) Work out Hassan's average speed for the whole ride, including the stop. 	
5 $y = 2x^4 + 5x^3 + 5x^2 + 2$ The curve crosses the y-axis at the point A. Work out the coordinates of A and the gradient of the curve at A.	

Day 13	IGCSE 10-a-day
6 Solve the simultaneous equations $y = x^2 - x + 4$ $y = -3x + 12$	
7 Solve $4 \tan x - 4 = 0$ for $0 \leq x \leq 360$.	
8 The cost, C pence per kilometre, of running a coach at a steady speed of v km/h is modelled by $C = \frac{1}{10}v + \frac{360}{v}$ $(v > 0)$ Find the speed at which the cost per kilometre is least, and show that it is a minimum. Work out the least cost per kilometre.	
9 PAQ is a tangent to the circle at A. B and C are points on the circle. Angle PAB = 50° and angle CAQ = 73°. (a) Work out the size of angle ABC. (b) Work out the size of angle ACB. The diagram is not drawn accurately. 	
10 A culture has 1000 bacteria. The number of bacteria increases by 3% each hour. After how many whole hours will there first be more than 1500 bacteria? (Calculator)	