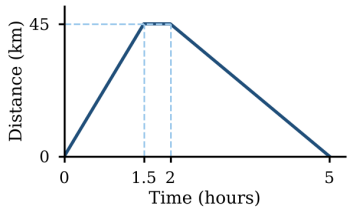
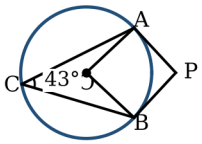
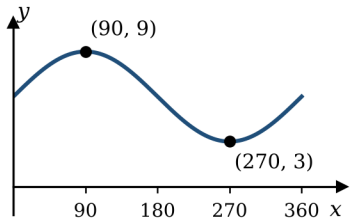
Day 45	IGCSE 10-a-day
1 Write these numbers in order of size, starting with the largest. $\frac{14}{15}$, 0.61, 91%, 0.72	
2 $y = (x + 1)(x - 3)$ Find $\frac{dy}{dx}$.	
3 The graph shows Tariq's cycle ride to a café and back. (a) Work out Tariq's speed on the way back. (b) Work out Tariq's average speed for the whole ride, including the stop. 	
4 PA and PB are tangents to a circle, centre O. C is a point on the circle. Angle ACB = 43°. (a) Work out the size of angle AOB. (b) Work out the size of angle APB. The diagram is not drawn accurately. 	
5 $f(x) = \frac{1}{\sqrt{x + 2}}$. (a) State the largest possible domain of f. (b) State the range of f for this domain.	

Day 45	IGCSE 10-a-day
6 The diagram shows the graph of $y = a \sin x° + c$ for $0 \leq x \leq 360$. Some points on the graph are labelled. Find the value of a and the value of c. 	
7 The curve $y = 2x^2 - 2x + 4$ crosses the y-axis at the point A. The tangent to the curve at A meets the x-axis at B. Find the coordinates of B.	
8 x and y satisfy $x \geq 0$, $y \geq 0$, $6x + 3y \leq 60$ and $2x + 6y \leq 30$. Find the greatest value of $P = 4x + 7y$ and the values of x and y that give it.	
9 In an animal shelter, the ratio of the number of cats to the number of dogs is 6 : 7. Then 12 more cats are added and 6 more dogs are added. The ratio is now 1 : 1. How many dogs were there at the start?	
10 $f(x) = x^3 + kx^2 + 12x - 2$, where k is a constant. Given that f is an increasing function for all values of x, find the range of possible values of k.	