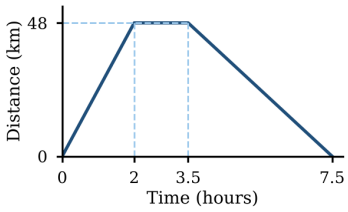
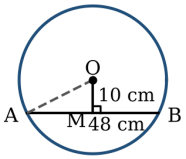
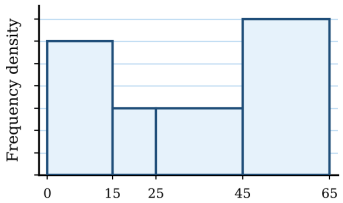
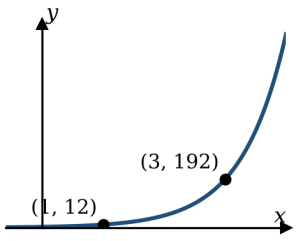
Day 3	IGCSE 10-a-day
1 A curve has equation $y = -2x^3 - 9x^2 - 12x + 4$. The point A $(-1, k)$ lies on the curve. Work out the value of k and the gradient of the curve at A.	
2 A and B are the points (6, 7) and (−6, 15). AB is a diameter of a circle. Find an equation of the circle.	
3 The graph shows Zane's cycle ride to a café and back. (a) Work out Zane's speed on the way back. (b) Work out Zane's average speed for the whole ride, including the stop. 	
4 AB is a chord of a circle, centre O. M is the midpoint of AB. (Calculator) (a) Work out the radius of the circle. (b) Work out angle AOB, to 1 decimal place. The diagram is not drawn accurately. 	
5 The set A has 8 elements. (a) Write down the number of subsets of A. (b) Write down the number of proper subsets of A.	

Day 3	IGCSE 10-a-day
6 The line $y = -4x + 4$ meets the curve $y = 2x^2 - 4x + 4$. Show that the line is a tangent to the curve and find the coordinates of the point where they touch.	
7 The histogram shows the ages, in years, of some visitors. The bar for 15 to 25 represents 30 visitors. Estimate the number of visitors with a value greater than 16. 	
8 The area of a square is 183 cm^2, correct to the nearest cm^2. Work out the upper bound of the side length of the square. Give your answer correct to 3 significant figures. (Calculator)	
9 The diagram shows the graph of $y = ka^x$, where k and a are constants and $a > 0$. The curve passes through the points (1, 12) and (3, 192). Find the value of k and the value of a. 	
10 $f(x) = x^3 + kx^2 + 27x + 4$, 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.	