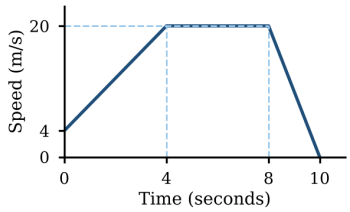
Day 204	IGCSE 10-a-day
1 A circular arc has a chord AB of length 10 cm. The greatest distance between the chord and the arc is 1 cm. Work out the radius of the circle.	
2 Evan changes £1000 into euros at £1 = €1.15. Evan spends €750 and then changes the rest back into pounds at £1 = €1.25. How many pounds does Evan get back?	
3 Two numbers x and y have a sum of 24. Find the least possible value of $x^2 + y^2$, showing that it is the least.	
4 The graph shows the speed of a cyclist during 10 seconds. (a) Work out the acceleration during the first 4 seconds. (b) Work out the average speed over the whole 10 seconds. 	
5 The area, A cm^2, of a circle of radius r cm is $A = \pi r^2$. (a) Find $\frac{dA}{dr}$ when r = 5. (b) Find the value of r when $\frac{dA}{dr} = 12\pi$.	

Day 204	IGCSE 10-a-day
6 Shape S has area 5 cm^2. S is transformed by the matrix $\begin{pmatrix} k & 4 \\ 3 & 3 \end{pmatrix}$ and the image has area 15 cm^2. Find the two possible values of k.	
7 $f(x) = \frac{4x - 6}{3x + 4}$ (a) Find $f^{-1}(x)$. (b) Find the value of $f^{-1}(-10)$.	
8 $f(x) = \frac{4x + 5}{x - k}$, where k is a constant and $x \neq k$. The function f is its own inverse, so $f^{-1}(x) = f(x)$. Find the value of k.	
9 Given that $x > 0$, solve $x^{-\frac{1}{4}} = \frac{1}{4}$	
10 A particle P moves on a straight line. At time t seconds ($t > 0$), its distance from a point O is s metres, where $s = 2t^2 + \frac{108}{t}$ Show that P is at its minimum distance from O when t = 3, and find this minimum distance.	