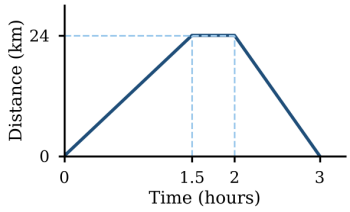
Day 328 **IGCSE 10-a-day**

1 The graph shows Fatima's cycle ride to a café and back.
(a) Work out Fatima's speed on the way back.
(b) Work out Fatima's average speed for the whole ride, including the stop.



2 A particle P moves in a straight line. After t seconds its displacement from a fixed point O is s metres, where
$s = 3t^3 + 5t^2 + 3t + 2$ $(t > 0)$
Find (a) the velocity of P, (b) the acceleration of P, when $t = 3$.

3 Expand and simplify $(x + 4)(x - 3)(x - 2)$

4 y is directly proportional to the cube of x.
When $x = 8$, $y = 1536$.
(a) Find a formula for y in terms of x.
(b) Find y when $x = 3$.

5 A point A is on level ground in line with the base of a tower. (Calculator)
The angle of elevation of the top of the tower from A is 49°.
B is a point on the same line, 50 m further from the tower than A.
The angle of elevation of the top of the tower from B is 26°.
Work out the height of the tower. Give your answer to 1 decimal place.

Day 328	IGCSE 10-a-day
6 Write $\frac{3+\sqrt{2}}{2-\sqrt{2}}$ in the form $p + q\sqrt{2}$ where p and q are rational numbers.	
7 $f(x) = \frac{1}{\sqrt{x-4}}$. (a) State the largest possible domain of f. (b) State the range of f for this domain.	
8 A curve has equation $y = x^3 + 9x^2 + 30x + 5$. (a) Show that the curve has no stationary points. (b) Find the least value of the gradient of the curve.	
9 A force of 2400 N acts on a surface, correct to the nearest 50. The area of the surface is 9.9 m^2, correct to 2 significant figures. Work out the upper bound of the pressure. Give your answer correct to 3 significant figures. (Calculator)	
10 A curve has equation $y = 2x + \frac{4}{\sqrt{x}}$ for $x > 0$. Find the coordinates of the stationary point and determine its nature.	