Day 343	IGCSE 10-a-day
1 $y = 3x^4 - 12x$ Find the coordinates of the stationary point and determine its nature.	
2 Triangle P has vertices A(2, 0), B(5, 3) and C(3, 2). Triangle Q has vertices A'(1, −1), B'(7, 5) and C'(3, 3). Q is an enlargement of P. Describe fully the single transformation that maps P onto Q.	
3 $f(x) = \frac{3x - 8}{3}$. (a) Find $f^{-1}(x)$. (b) Find $f^{-1}(-3)$.	
4 A car loses 4% of its value each year. After 3 years it is worth £24,330.24. Work out its value when it was new. (Calculator)	
5 A circle has equation $x^2 + y^2 = 25$. The point P(3, 4) lies on the circle. Find an equation of the tangent to the circle at P. Give your answer in the form ax + by = c, where a, b and c are integers.	

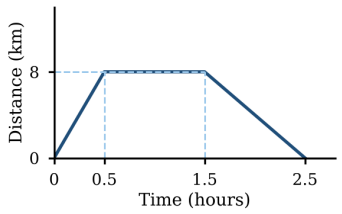
Day 343 **IGCSE 10-a-day**

6 Solve $2 \sin x - 2 = 0$ for $0 \leq x \leq 360$.

7 An open tray has a square base of side x cm and height h cm. The total outside surface area is 12 cm^2.
(a) Show that the volume of the box is $V = \frac{1}{4}(12x - x^3)$ cm^3.
(b) Find the maximum volume of the box, proving that it is a maximum.

8 The height of a tower is 0.61 m, truncated to 2 decimal places.
Write down the error interval for the height of a tower, using h.

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



10 The diagram shows the curve $y = 2x^2 - 5x - 2$ and the normal at P(3, 1), meeting the x-axis at Q. R is (3, 0).
(a) Find the normal in the form $x + ky = c$.
(b) Work out the area of triangle PQR.

