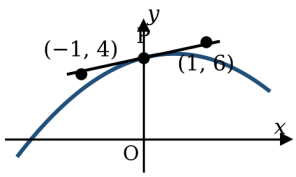
Day 56 **IGCSE 10-a-day**

1 $f(x) = 2x^4 + 7x^3 + x$
(a) Find $f'(x)$.
(b) Work out the value of $f'(-1)$.

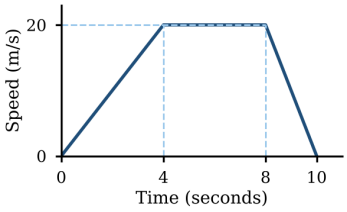
2 Write these numbers in order of size, starting with the largest.
$\frac{1}{5}$, $\frac{7}{11}$, 0.69, 0.66

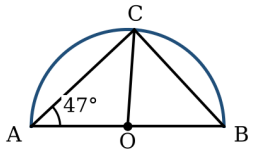
3 Solve $x^2 + 2x - 3 \geq 0$

4 The diagram shows part of the curve $y = -x^2 + x + 5$. The line shown is the tangent to the curve at the point P. (Not drawn accurately.)
(a) Use the two marked points on the tangent to work out its gradient.
(b) Use differentiation to find the x coordinate of P.



5 The graph shows the speed of a car during 10 seconds.
(a) Work out the acceleration during the first 4 seconds.
(b) Work out the average speed over the whole 10 seconds.



Day 56	IGCSE 10-a-day
6 AB is a diameter of a circle, centre O. C is a point on the circle. Angle BAC = 47°. (a) Work out the size of angle ACB. (b) Work out the size of angle COB. The diagram is not drawn accurately. 	
7 x and y satisfy these inequalities: $x \geq 0$, $y \geq 1$, $3x + 4y \leq 16$ Find the least possible value of $3x - 3y$.	
8 The positive numbers x and y satisfy $3x + y = 18$. Find the greatest possible value of xy, showing that it is the greatest.	
9 The mean mark of 9 students in the boys is 61. The mean mark of 6 students in the girls is 69. Work out the mean mark of all 15 students.	
10 Work out $(3.6 \times 10^8) - (5.4 \times 10^7)$ Give your answer in standard form.	