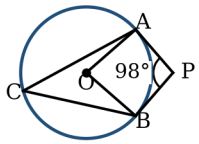
Day 361	IGCSE 10-a-day
1 Work out the value of $3p - q^3$ when $p = 3$, $q = 1$ and $r = -1$.	
2 The mean of 7 numbers is 95. One number is removed and the mean of the remaining 6 numbers is 108. Work out the number that was removed.	
3 Solve $7 \tan x + 8 = 0$ for $0° \leq x \leq 360°$. (Calculator) Give your answers correct to 1 decimal place.	
4 x and y satisfy $x \geq 0$, $y \geq 0$, $3x + 6y \leq 36$ and $4x + 2y \leq 36$. Find the greatest value of $P = 9x + 7y$ and the values of x and y that give it.	
5 A rectangular enclosure is x metres wide and y metres long. It is fenced all round and divided into two equal parts by a fence each of length x metres, parallel to the width. The total length of fencing used is 24 m. (a) Show that the area of the enclosure is $A = -\frac{3}{2}x^2 + 12x$. (b) Find the maximum possible area, justifying that it is a maximum.	

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6 Work out $6.8 \times 10^{-3} - 7.5 \times 10^{-6}$. Give your answer in standard form.	
7 The equation of a curve is $y = -6x^{3/2} + 4x - 2\sqrt{x}$. Work out the gradient of the curve at the point where $x = 9$.	
8 Given that $(a + \sqrt{5})(b + \sqrt{5}) = 47 + 13\sqrt{5}$, where a and b are positive integers with $a < b$, find the values of a and b.	
9 PA and PB are tangents to a circle, centre O. C is a point on the circle. Angle APB = 98°. (a) Work out the size of angle AOB. (b) Work out the size of angle ACB. The diagram is not drawn accurately. 	
10 The curve $y = x^3 + ax^2 + bx$ has stationary points at $x = 0$ and $x = 4$. Find the values of a and b.	