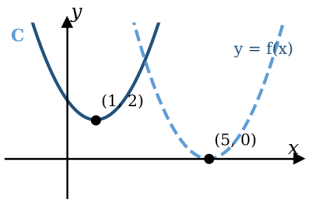
Day 63	IGCSE 10-a-day
1 Solve $3 \cos x - 2 = 0$ for $0° \leq x \leq 360°$. (Calculator) Give your answers correct to 1 decimal place.	
2 The height of a tower is 56 m, truncated to a whole number. Write down the error interval for the height of a tower, using h.	
3 $f(x) = 3x^2 + 24x - 1$ Use differentiation to find the coordinates of the turning point of the graph of $y = f(x)$. State whether it is a maximum or a minimum.	
4 W is inversely proportional to h. When h = 10, W = 1.2. (a) Find a formula for W in terms of h. (b) Find W when h = 15.	
5 $f(x) = x^3 - 27x + 2$ Find the y coordinate of the local maximum point and the y coordinate of the local minimum point.	

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6 The diagram shows the graph of y = f(x) with a minimum point at (1, 2).
The dashed curve C is the image of y = f(x) after a translation.
The minimum point of C is (5, 0).
Write down the equation of C in terms of f.



7 Show that $\frac{x+3}{2x-3} + \frac{6}{x-1}$ can be written as $\frac{x^2+14x-21}{(2x-3)(x-1)}$

8 A company makes and sells x thousand items.
All amounts are in thousands of pounds.
The revenue is R = x(36 − 3x) and the cost is C = 9 + 6x.
(a) Show that the profit P = R − C is P = $-3x^2$ + 30x − 9.
(b) Find the number of items that must be sold for the profit to be a maximum, and this maximum profit.

9 Alloy A holds copper and tin in the ratio 4 : 5.
Alloy B holds copper and tin in the ratio 4 : 2.
18 kg from alloy A and 24 kg from alloy B are mixed.
Work out the ratio of copper to tin in the mixture.

10 PA and PB are tangents to a circle, centre O. C is a point on the circle. Angle APB = 78°.
(a) Work out the size of angle AOB.
(b) Work out the size of angle ACB.
The diagram is not drawn accurately.

