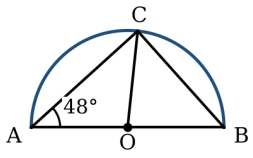
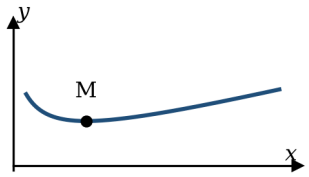
Day 146	IGCSE 10-a-day
1 ABCD is a parallelogram. A = (−2, 2), B = (3, −1) and D = (2, 4). Find the coordinates of C and of the point where the diagonals meet.	
2 The price of a watch is increased by 20%. Later the new price is reduced by 15% in a sale. The sale price is £40.80. Work out the price before the increase. (Calculator)	
3 Work out $2\frac{1}{3} \div 2\frac{2}{5} + 3\frac{1}{4}$ Give your answer as a mixed number or a fraction in its simplest form.	
4 AB is a diameter of a circle, centre O. C is a point on the circle. Angle BAC = 48°. (a) Work out the size of angle ACB. (b) Work out the size of angle COB. The diagram is not drawn accurately. 	
5 (a) Show that the equation $x^3 - 5x - 34 = 0$ has a solution between x = 3 and x = 4. (b) Show that the equation can be rearranged to give $x = \sqrt[3]{5x + 34}$	

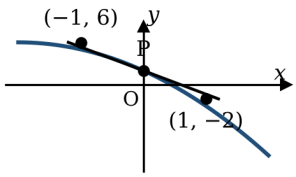
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6 The diagram shows a sketch of the curve $y = 2x + \frac{2}{x}$ for $x > 0$.
The curve has a minimum point at M.
Find the coordinates of M, justifying that it is a minimum.



7 Write $\frac{8}{4+\sqrt{10}}$ in the form $\frac{p+q\sqrt{10}}{r}$
where p, q and r are integers and $r > 1$,
and the fraction is in its simplest form.

8 The diagram shows part of the curve $y = -x^2 - 4x + 2$. 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.



9 $g(x) = x^2 + 2x + 8$ for $x \geq -1$.
(a) Find the range of g.
(b) Find $g^{-1}(x)$.

10 The curve C has equation $y = x^2 - 3x - 6$.
The points A and B on C have x coordinates −3 and 0.
The tangents to C at A and at B meet at the point T. Find the coordinates of T.