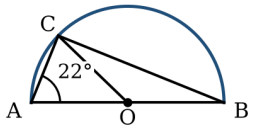
Day 258 **IGCSE 10-a-day**

1 The 4-digit number 198k is a multiple of 9.
k is a single digit.
Find all the possible values of k.

2 AB is a diameter of a circle, centre O. C is a point on the circle. Angle BAC = 22°.
(a) Work out the size of angle ACB.
(b) Work out the size of angle COB.
The diagram is not drawn accurately.



3 A curve has equation $y = (x + 1)(x - 2)(x + 3)$.
Work out the gradient of the curve at each point where it crosses the x-axis.

4 15 workers can build a wall in 30 days.
After 4 days, 2 of the workers leave. The rest carry on working at the same rate.
How many more days does it take to finish?

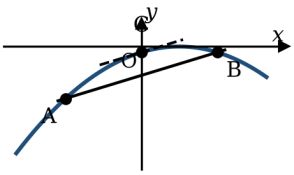
5 Simplify fully $\frac{x^2 - 49}{x^2 + 12x + 35}$

Day 258 **IGCSE 10-a-day**

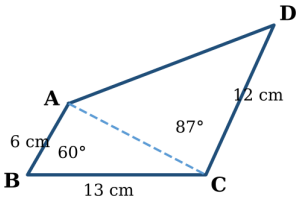
6 $f(x) = -4x^{-1/2} - 4x^{-3/2}$
Find $f'(x)$ and work out the value of $f'(9)$.

7 $A = \begin{pmatrix} 1 & 2 \\ 5 & 2 \end{pmatrix}$ and $B = \begin{pmatrix} -2 \\ -2 \end{pmatrix}$.
$AX = B$, where X is a 2×1 matrix.
Find X.

8 The diagram shows part of the curve $y = -2x^2 + 4x - 2$. A and B are the points on the curve with x coordinates -2 and 2.
C is the point on the curve between A and B at which the tangent is parallel to AB. Find the coordinates of C.



9 In quadrilateral ABCD, AB = 6 cm, BC = 13 cm, CD = 12 cm,
angle ABC = 60° and angle ACD = 87°.
Work out the area of ABCD. Give your answer correct to 3 significant figures. (Calculator)



10 Machine A makes 40% of the bolts in a factory.
Machine B makes the rest.
60% of the bolts from machine A are faulty.
30% of the bolts from machine B are faulty.
(a) Work out the probability that a bolt chosen at random is faulty.
(b) A faulty bolt is found. Work out the probability that it was made by machine A.