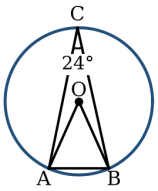
Day 73 **S Tier 10-a-day**

1 A, B and C are points on a circle, centre O.
Angle ACB = 24°.
(a) Work out the size of angle AOB.
(b) Work out the size of angle OAB.
The diagram is not drawn accurately.



2 (a) Write $4x^2 + 32x + 59$ in the form $a(x + p)^2 + q$
(b) Write down the coordinates of the turning point of the curve $y = 4x^2 + 32x + 59$

3 Here are six numbers.
$\frac{\sqrt{20}}{\sqrt{5}}$, $(1 + \sqrt{2})^2$, $\sqrt{0.25}$, $0.\dot{4}$, $\sqrt{50}$, $\sqrt{8} \times \sqrt{2}$
Write down the irrational numbers.

4 The ratio of red to blue marbles in a jar is 3 : 2.
Then $\frac{2}{3}$ of the red and $\frac{1}{6}$ of the blue are taken out.
Work out the ratio of red to blue now.

5 Solve $5^x = \frac{1}{125}$

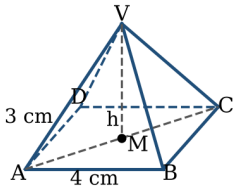
Day 73 **S Tier 10-a-day**

6 Two bottles are mathematically similar.
The heights of the bottles are 6 cm and 15 cm.
The smaller one has capacity 80 ml.
Work out the capacity of the larger one.

7 The table shows the monthly sales (thousands) over six periods.
The 3-point moving average centred on Mar is 24.
(a) Work out the value of x.
(b) Work out the 3-point moving average centred on Apr.

	Jan	Feb	Mar	Apr	May	Jun
Value	12	33	x	26	36	19

8 VABCD is a pyramid on a square base. V is directly above the centre M.
(a) Work out the height VM of the pyramid.
(b) Work out the volume of the pyramid.
The diagram is not drawn accurately.



9 In a group of members, 70% are juniors and the rest are seniors.
30% of the juniors and 35% of the seniors play chess.
What percentage of all the members play chess?

10 The equation $kx^2 - 3x + 3 = 0$ has equal roots.
Find the value of k.