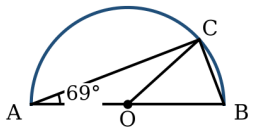
Day 346 **IGCSE 10-a-day**

1 AB is a diameter of a circle, centre O. C is a point on the circle. Angle BAC = 69°.
(a) Work out the size of angle ACB.
(b) Work out the size of angle COB.
The diagram is not drawn accurately.



2 The table shows the number of members in each of four groups.
(a) A stratified sample of 25 is taken. Work out how many come from Group B.
(b) A different stratified sample has 14 from Group D. Work out the size of this sample.

	Group A	Group B	Group C	Group D
Number	600	150	150	350

3 A train travels a distance of 920 km, correct to the nearest 10.
The journey takes 59 hours, correct to the nearest whole number.
Work out the upper bound of the speed.
Give your answer correct to 3 significant figures. (Calculator)

4 $f(x) = 4x - 6$ and $g(x) = 2x - 6$.
Show that $fg(x) - gf(x) = -12$.

5 A particle moves in a straight line. Its velocity, v m/s, at time t seconds is given by
$v = 24t - 2t^2$ for $0 \leq t \leq 12$
Find the time at which the speed of the particle is greatest, and this greatest speed.

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6 In a group of members, 70% are juniors and the rest are seniors. 25% of the juniors and 35% of the seniors play chess. What percentage of all the members play chess?	
7 A curve has equation $y = -4x - \frac{6}{x}$. Find the coordinates of the points on the curve where the gradient is 2.	
8 V is directly proportional to the square of h and directly proportional to r. When h = 2 and r = 6, V = 240. Find V when h = 5 and r = 4.	
9 Prove algebraically that the sum of the cubes of any three consecutive integers is a multiple of 9.	
10 P is the point $(t, \frac{7}{2}t^2)$ on the curve $y = \frac{7}{2}x^2$, where $t \neq 0$. The normal to the curve at P meets the y-axis at the point Q. Show that the y coordinate of Q is $\frac{7}{2}t^2 + \frac{1}{7}$.	