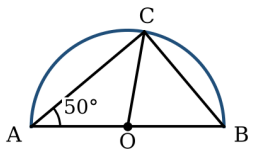
Day 266 **S Tier 10-a-day**

1 The ratio of boys to girls in a school is 3 : 2.
85% of the boys and 60% of the girls walk to school.
What percentage of all of these students walk to school?

2 AB is a diameter of a circle, centre O. C is a point on the circle. Angle BAC = 50°.
(a) Work out the size of angle ACB.
(b) Work out the size of angle COB.
The diagram is not drawn accurately.



3 The table shows the number of members in each of four groups.
(a) A stratified sample of 31 is taken. Work out how many come from Group B.
(b) A different stratified sample has 10 from Group B. Work out the size of this sample.

	Group A	Group B	Group C	Group D
Number	100	50	90	70

4 The point P(4, 4) lies on the graph of y = f(x).
Write down the coordinates of the image of P on the graph of

(a) y = 2f(x) (b) y = $\frac{1}{2}$f(x)

5 Triangle ABC has AB = 12 cm and BC = 20 cm.
The area of triangle ABC is 60 cm^2.
Angle ABC is acute.
Work out the size of angle ABC.
Do not use a calculator.

Day 266	S Tier 10-a-day
6 Simplify fully $2\sqrt{7} \times 3\sqrt{21}$	
7 A circle has equation $x^2 + y^2 = 100$. The point P(8, 6) lies on the circle. Find an equation of the tangent to the circle at P. Give your answer in the form $ax + by = c$, where a, b and c are integers.	
8 Simplify fully $\frac{x^2 + 8x + 12}{x + 7} \div \frac{x + 2}{x^2 + 3x - 28}$	
9 In a population of 20,000 people, 4% have a certain disease. A test gives a positive result for 80% of people who have the disease and for 5% of people who do not. A person is chosen at random and tests positive. Work out the probability that they have the disease.	
10 A rectangle has area $(7 + 4\sqrt{3})$ cm^2 and length $(2 + \sqrt{3})$ cm. Find the width of the rectangle. Give your answer in the form $a + b\sqrt{3}$	