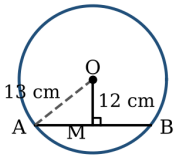
Day 290 **S Tier 10-a-day**

1 The interior angles of a pentagon are
$x°$, $(x - 30)°$, $(x + 35)°$, $(2x - 30)°$, $(x + 25)°$
(a) Work out the value of x.
(b) Work out the size of the largest angle.

2 The ratio of Year 10 students to Year 11 students in a school is 2 : 1.
50% of the Year 10 students and 35% of the Year 11 students have a part-time job.
What percentage of all of these students have a part-time job?

3 AB is a chord of a circle, centre O. M is the midpoint of AB. (Calculator)
(a) Work out the length of the chord AB.
(b) Work out angle AOB, to 1 decimal place.
The diagram is not drawn accurately.



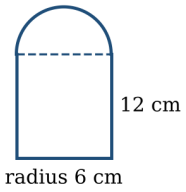
4 The table shows the number of students in each of four groups.
(a) A stratified sample of 24 is taken. Work out how many come from Year 10.
(b) A different stratified sample has 33 from Year 8. Work out the size of this sample.

	Year 7	Year 8	Year 9	Year 10
Number	60	110	30	40

5 A fuel tank is $\frac{1}{10}$ full.
175 more litres of petrol are added and the fuel tank is then $\frac{4}{5}$ full.
Work out the capacity of the fuel tank.

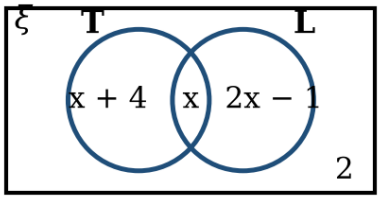
Day 290	S Tier 10-a-day

6 A solid is made from a cylinder of height 12 cm and a hemisphere. Both have radius 6 cm.
Work out the total volume of the solid. Give your answer in terms of π.



7 The 2nd term of a geometric sequence is 48.
The 4th term of the sequence is 12.
All the terms of the sequence are positive.
(a) Work out the common ratio.
(b) Work out the first term.

8 The Venn diagram shows how many of 29 students have a tablet (T) or a laptop (L).
(a) Work out the value of x.
(b) A student is chosen at random from those who have a laptop. Work out the probability that this student also has a tablet.



9 V is directly proportional to the cube of r.
When r = 10, V = 2000.
(a) Find a formula for V in terms of r.
(b) Find the value of V when r = 1.

10 a = 84 and b = 44, both correct to 3 significant figures.
Work out a ÷ b.
Write down your answer to a suitable degree of accuracy.
You must show your working and give a reason for your answer. (Calculator)