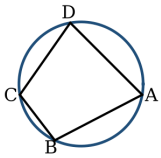
Day 180 **S Tier 10-a-day**

1 FitLife has a joining fee of £7.50 plus £5 per month.
GymNow has a joining fee of £25.50 plus £2 per month.
(a) Work out the number of months for which the two costs are the same.
(b) Which is cheaper for 11 months, and by how much?

2 A wooden block in the shape of a cuboid weighs 930 N.
Its smallest face has area 100 cm^2. Its largest face has area 2,500 cm^2.
Pressure = force ÷ area
Work out (a) the greatest pressure and (b) the least pressure the wooden block can exert on the ground, in N/m^2.

3 A, B, C and D are points on a circle. Angle DAB = (3x − 15)°, angle BCD = (5x + 35)° and angle ABC = (3x + 25)°.
(a) Work out the value of x.
(b) Work out the size of angle ADC.
The diagram is not drawn accurately.



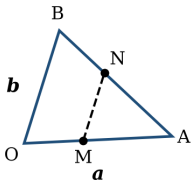
4 The table shows the number of members in each of four groups.
(a) A stratified sample of 38 is taken. Work out how many come from Group B.
(b) A different stratified sample has 24 from Group C. Work out the size of this sample.

	Group A	Group B	Group C	Group D
Number	110	100	120	50

5 Ivan puts £2,500 in a savings account.
Compound interest is paid at 2% in year 1, 2% in year 2 and 5% in year 3.
Work out the amount in the account at the end of year 3.
Give your answer to the nearest penny.
(Calculator)

Day 180	S Tier 10-a-day

6 OAB is a triangle. OA = **a** and OB = **b**.
M is on OA with OM : MA = 2 : 3. N is on AB with AN : NB = 3 : 2.
(a) Find ON in terms of **a** and **b**.
(b) Show that MN is parallel to OB.
The diagram is not drawn accurately.



7 Solve the simultaneous equations
$4x + 6y = 34$
$5x - y = 0$

8 Show that $\frac{6}{x-4} - \frac{6}{x-2}$ can be written as $\frac{12}{(x-4)(x-2)}$

9 ABCD is a rectangle with AB = 2 cm and AD = 6 cm.
A point P inside the rectangle is such that AP ≤ 2 cm and P is nearer to A than to B.
Work out the area of the region in which P can lie. Give your answer in terms of π and surds.

10 a = 0.483 and b = 27.8, 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)