Day 307 **S Tier 10-a-day**

1 The table shows the number of members in each of four groups.
(a) A stratified sample of 28 is taken. Work out how many come from Group C.
(b) A different stratified sample has 12 from Group D. Work out the size of this sample.

	Group A	Group B	Group C	Group D
Number	250	550	300	300

2 A bag contains marbles.
$\frac{2}{5}$ of the marbles are yellow and $\frac{1}{4}$ of the marbles are black.
The rest of the marbles, 42 of them, are white.
How many black marbles are there?

3 Solve $3^{2x-2} = 81^{x+3}$

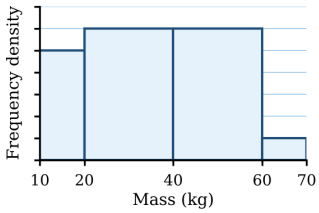
4 Simplify fully $\frac{4\sqrt{45}}{3\sqrt{5}}$

5 Each interior angle of a regular polygon is 8 times the size of each exterior angle.
Work out the number of sides of the polygon.

Day 307 **S Tier 10-a-day**

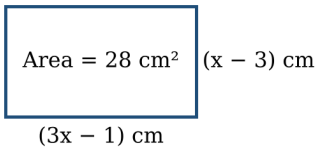
6 A and B are points on the curve $y = x^3 + 4x$.
The x coordinate of A is 3 and the x coordinate of B is 5.
Work out the gradient of the line AB.

7 The histogram shows the masses of parcels delivered by a courier.
360 of them had a mass between 20 and 40 kg.
(a) How many had a mass between 60 and 70 kg?
(b) How many parcels are there in total?



8 A car loses 10% of its value each year.
After 4 years it is worth £7,217.10.
Work out its value when it was new.
(Calculator)

9 The diagram shows a rectangle of length $(3x - 1)$ cm, width $(x - 3)$ cm and area 28 cm^2.
(a) Show that $3x^2 - 10x - 25 = 0$.
(b) Work out the perimeter of the rectangle.



10 Write $10^5 \times 15^4$ as a product of powers of prime numbers.