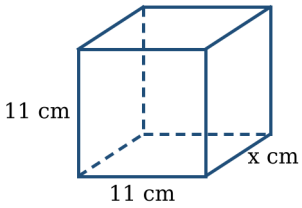
Day 88 **A Tier 10-a-day**

1 The table shows information about 57 people.
One person is chosen at random.
(a) Find the probability that the person is a girl and studies Spanish.
(b) The person studies French. Find the probability that they are a boy.

	French	Spanish	Total
Boys	30	5	35
Girls	5	17	22
Total	35	22	57

2 The diagram shows a prism with a rectangle as its cross-section.
The volume of the prism is 1694 cm^3.
Work out the value of x.
The diagram is not drawn accurately.



3 A machine exerts a force of 100 N on the floor.
The pressure on the floor is 400 N/m^2.
Work out the area of the machine in contact with the floor.

4 Expand and simplify
$4(x + 5)(x + 4) - (x - 2)(x + 2)$

5 $\mathbf{a} = \begin{pmatrix} -3 \\ 5 \end{pmatrix}$ and $\mathbf{b} = \begin{pmatrix} -5 \\ 4 \end{pmatrix}$.
Work out $4\mathbf{a} + 1\mathbf{b}$.

Day 88	A Tier 10-a-day
6 A jug holds $11\frac{3}{5}$ litres of juice. Glasses hold $\frac{2}{5}$ litre each. How many glasses can be filled completely?	
7 A plane leaves an airport and travels 9 miles on a bearing of 120°. (Calculator) It then travels 12 miles on a bearing of 210°. (a) Work out how far it is now from the airport. (b) Work out the bearing of its final position from the airport. Give your answer to the nearest degree.	
8 Rationalise the denominator of $\frac{54}{5-\sqrt{7}}$ Give your answer in the form $a + b\sqrt{c}$ where a and b are integers.	
9 The value of an investment grows by 20% each year. (Calculator) After 3 years it is worth £61,344. Work out its value at the start.	
10 A is the point (2, 0) and B is the point $(-4, -2)$. Find the equation of the perpendicular bisector of AB.	