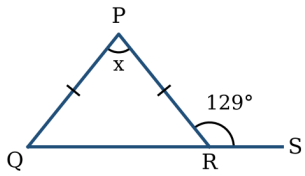
Day 145 **A Tier 10-a-day**

1 PQR is an isosceles triangle with PQ = PR.
QRS is a straight line.
Angle PRS = 129°.
Work out the size of angle x.
The diagram is not drawn accurately.

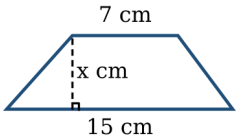


2 (a) Write 84 and 132 as products of prime factors.
(b) Find the highest common factor (HCF) and the lowest common multiple (LCM) of 84 and 132.

3 A straight line has equation $-2x + 3y = 2$
(a) Find the gradient of the line.
(b) Find the coordinates of the point where the line crosses the x-axis.

4 A roll of ribbon is $5\frac{2}{5}$ metres long. Pieces of $\frac{3}{5}$ metre are cut from it.
How many pieces can be cut?

5 Leah earns £22000 a year.
She pays no tax on the first £12000.
She pays 30% tax on the rest.
Work out how much tax she pays in a year.

Day 145	A Tier 10-a-day
6 $f(x) = x^3 - x^2 + 5x + 11$ Show that the equation $f(x) = 0$ has a solution between $x = -2$ and $x = -1$.	
7 Work out $3\frac{1}{3} - 1\frac{4}{7}$ Give your answer as a mixed number in its simplest form.	
8 The area of this trapezium is 44 cm^2. Work out the value of x. The diagram is not drawn accurately. 	
9 Solve $\frac{6}{(x-5)} + \frac{6}{(x+4)} = 1$	
10 A scientist wants to estimate the number of frogs in a pond. She catches 60 frogs, marks each one and returns them. Later she catches a second sample of 40 frogs. 10 of these are marked. Work out an estimate for the total number of frogs in a pond.	