Day 289 **A Tier 10-a-day**

1 Here are the first four terms of a sequence.
$-5, -12, -19, -26$
(a) Find an expression for the nth term.
(b) Is -68 a term of this sequence? You must show your working.

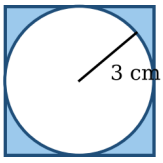
2 Work out $(9.6 \times 10^{-7}) \div (8 \times 10^{3})$
Give your answer in standard form.

3 Here are the first four terms of a geometric sequence.
$1, -3, 9, -27$
(a) Write down the next two terms.
(b) Work out the 7th term.

4 Here are the results for 29 matches.
(a) Find the median.
(b) Work out the range.

Goals scored	0	1	2	3	4
Frequency	9	7	6	5	2

5 $f(x) = 4x + 6$
$g(x) = x^2 - 9$
Find $fg(4)$

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6 Solve $5^x = \frac{1}{25}$	
7 A sector has radius 12 cm and area 48π cm^2. Work out the angle at the centre of the sector.	
8 A bag contains 3 mint and 4 fruit sweets. Two sweets are taken at random without replacement. Work out the probability that the two sweets are the same colour.	
9 A circle of radius 3 cm fits exactly inside a square. The circle touches all four sides of the square. (Calculator) Work out the area of the shaded region. Give your answer to 3 significant figures. 	
10 y is directly proportional to the cube of x. When x = 5, y = 375. (a) Find a formula for y in terms of x. (b) Work out the value of y when x = 2.	