Day 342 **A Tier 10-a-day**

1 The table shows the probabilities of the outcomes of a biased spinner.
(a) Work out the value of p.
(b) The spinner is spun 300 times. Estimate the number of times it lands on 2.

Score	1	2	3	4
Probability	0.05	p	2p	0.35

2 (a) Solve $-5 \leq 2x - 7 \leq 1$
(b) Write down all the integer values of x that satisfy this inequality.

3 (a) Change 7 cm^2 to mm^2.
(b) Change 15 m^2 to mm^2.

4 Expand and simplify
$(2x + 5)(2x + 3)$

5 A rectangle has length $(3x + 8)$ cm and width $(3x + 6)$ cm.
The perimeter of the rectangle is 64 cm.
(a) Work out the value of x.
(b) Work out the area of the rectangle.

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6 Expand and simplify $2\sqrt{10}(5 + 4\sqrt{10})$ Write your answer in the form $a + b\sqrt{c}$	
7 Triangle LMN has vertices L(1, 2), M(4, −1), N(0, 1). The triangle is enlarged with scale factor 4 and centre (0, 0). Write down the coordinates of the vertices of the image.	
8 Solve $x^2 > 100$	
9 y is directly proportional to the square of x. When x = 2, y = 36. (a) Find a formula for y in terms of x. (b) Work out the positive value of x when y = 225.	
10 A solid is made from a cylinder of radius 9 cm and a hemisphere on top, with the same radius. The total volume of the solid is 1539π cm^3. Work out the height of the cylinder.	