Day 252 **C Tier 10-a-day: Model Solutions**

1 Addition

Work out 441 + 290.

Add the hundreds, tens and units
441 + 290 = 731
Answer: 731

2 Reflecting a point

The point P has coordinates (−5, 2).
P is reflected in the y-axis.
Write down the coordinates of the image of P.

The y-coordinate stays the same and the x-coordinate changes sign
Answer: (5, 2)

3 Probability with dice

A fair six-sided dice is rolled.
Write down the probability of rolling
(a) a 1
(b) a number less than 6

(a) 1 out of 6 numbers: $\frac{1}{6}$

(b) 5 out of 6 numbers: $\frac{5}{6}$

Answer: (a) $\frac{1}{6}$ (b) $\frac{5}{6}$

4 Number puzzles

Gita thinks of a number.
Gita multiplies it by 8.
The answer is 96.
What number did Gita think of?

Divide 96 by 8
96 ÷ 8 = 12
Answer: 12

5 Volume by counting cubes

A tray holds 1 cm cubes in layers.
Each layer is 8 cubes long and 3 cubes wide.
There are 4 layers.
How many cubes are there altogether?

Cubes in one layer: 8 × 3 = 24
Number of layers: 4
24 × 4 = 96
Answer: 96 cubes

6 Probability of an event not happening

The probability that a player scores a goal is 0.7.
Work out the probability that this does not happen.

P(not) = 1 − P(event)
1 − 0.7 = 0.3
Answer: 0.3

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7 Pattern sequences

Matchsticks are used to make a pattern of triangles.
The diagram shows the first three patterns.
How many matchsticks are needed for
(a) Pattern 5
(b) Pattern 7

Pattern 1, 2, 3 have 3, 5, 7 matchsticks
Each pattern has 2 more matchsticks than the one before
Pattern 5: $3 + 2 \times 4 = 11$
Pattern 7: $3 + 2 \times 6 = 15$
Answer: (a) 11 (b) 15

8 Factors

Write down all the factors of 16.

Find pairs that multiply to make 16
1×16, 2×8, 4×4
Answer: 1, 2, 4, 8, 16

9 Perimeter of a square from its area

A square lawn has an area of 49 m^2.
Work out the perimeter of the lawn.

Side × side = 49, so the side is 7 m (because $7 \times 7 = 49$)
Perimeter = $4 \times 7 = 28$
Answer: 28 m

10 Function machines

Here is a function machine.
The output is 47.
Work out the input.

Work backwards using the opposite operations
$47 - 15 = 32$
$32 \div 4 = 8$
Answer: 8