Day 235 **C Tier 10-a-day: Model Solutions**

1 Reading a scale

The diagram shows part of a measuring scale.
Write down the reading shown by the arrow.

The labelled marks go up in 100. There are 4 small steps between labelled marks, so each small step is 100 ÷ 4 = 25.
The arrow is 3 small steps after 200.
200 + 3 × 25 = 275
Answer: 275 ml

2 Substitution

Work out the value of 2t when t = 2.

2t means 2 × t
2 × 2 = 4
Answer: 4

3 Money: totals

Dan buys tea and biscuits.
Tea costs £1.75.
Biscuits costs £1.75.
Work out the total cost.

£1.75 + £1.75
175p + 175p = 350p = £3.50
Answer: £3.50

4 Writing expressions

Simplify 7 × n

Write the number first, then the letters in alphabetical order, with no × signs
Answer: 7n

5 Map scales

On a map, 1 cm represents 10 km.
On the map, two towns are 6 cm apart.
Work out the real distance between the towns.

1 cm represents 10 km
6 × 10 = 60
Answer: 60 km

6 Negative numbers: temperature

The temperature is −2°C.
It rises by 6°C.
What is the new temperature?

−2 + 6 = 4
Answer: 4°C

7 Pattern sequences

The diagram shows the first three patterns in a sequence made by Femi.
Each pattern is made from dots.
How many dots are in Pattern 5?

Each pattern is a square: 1 × 1, 2 × 2, 3 × 3
Pattern 5 is 5 × 5 = 25
Answer: 25

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8 Sampling

Ella wants to find out how many people eat fast food.
Ella asks people outside a fast food restaurant.
Give a reason why this sample may be biased.

They are more likely to eat fast food than other people

Answer: They are more likely to eat fast food than other people

9 Cost from perimeter

A rectangular garden is 7 m long and 5 m wide.
Fencing costs £5 per metre.
Work out the cost of putting fence all the way round the garden.

Perimeter = 7 + 5 + 7 + 5 = 24 m
Cost = 24 × £5 = £120

Answer: £120

10 Expected number

The probability that a seed grows is $\frac{3}{10}$.

Mia plants 120 seeds.
How many seeds would you expect to grow?

Expected number = probability × number of trials

$\frac{3}{10} \times 120 = 36$

Answer: 36