Day 239 **C Tier 10-a-day: Model Solutions**

1 Sequences

Here are the first four terms of a sequence.
3, 13, 23, 33
Write down the next term.

The terms go up by 10 each time
33 + 10 = 43
Answer: 43

2 Simplifying ratios

Simplify the ratio 42 : 18

Divide both numbers by 6
42 ÷ 6 = 7 and 18 ÷ 6 = 3
Answer: 7 : 3

3 Types of angle

Write down the type of each angle.
Choose from: acute, right, obtuse, reflex.
(a) 10°
(b) 90°

(a) 10° is less than 90°, so it is acute
(b) 90° is exactly 90°, so it is right
Answer: (a) acute (b) right

4 Collecting like terms

Simplify 6y + 5y

All the terms are in y, so just add or subtract the numbers in front of y
Answer: 11y

5 Perimeter on a square grid

The diagram shows a shape drawn on a square grid.
Each square has a side of length 1 m.
Work out the perimeter of the shape.

Count the length of each side going round the shape.
4 + 2 + 3 + 3 + 3 + 1 + 4 + 2 = 22
Answer: 22 m

6 Negative numbers: temperature

The temperature is −5°C.
It rises by 4°C.
What is the new temperature?

−5 + 4 = −1
Answer: −1°C

7 Tables of values

Complete the table of values for y = 4x + 1.

When x = 1: y = 4 × 1 + 1 = 5
When x = 3: y = 4 × 3 + 1 = 13
Answer: x = 1: y = 5; x = 3: y = 13

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8 Perimeter of an L-shape

The diagram shows an L-shape.
All the corners are right angles.
Work out the perimeter of the shape.
The diagram is not drawn accurately.

Find the two missing sides.
Missing horizontal side: 12 − 10 = 2
Missing vertical side: 11 − 6 = 5
Add all six sides: 12 + 6 + 2 + 5 + 10 + 11 = 46
Answer: 46 cm

9 Division in context

Each minibus holds 50 people.
127 people need a lift.
How many minibuses are needed?

127 ÷ 50 = 2 remainder 27
The extra people need another minibus
Answer: 3

10 Sampling

Ravi wants to find out how many hours of sleep teenagers get.
Ravi asks only students in the first lesson of the day.
Give a reason why this sample may be biased.

The students are all from one group and the sample is small and not random
Answer: The students are all from one group and the sample is small and not random