Day 110 **C Tier 10-a-day: Model Solutions**

1 Writing expressions

Simplify 3 × n × p

Write the number first, then the letters in alphabetical order, with no × signs

Answer: 3np

2 Average speed

A cyclist travels 60 km in 4 hours.
Work out its average speed.

Speed = distance ÷ time
60 ÷ 4 = 15
Answer: 15 km/h

3 Collecting like terms

Simplify 4k + 8k

All the terms are in k, so just add or subtract the numbers in front of k
Answer: 12k

4 The range

Here are the numbers of goals scored by a team in some matches.
5 4 6 1 5 1 6
Work out the range.

Range = largest value − smallest value
6 − 1 = 5
Answer: 5

5 Area on a square grid

The diagram shows a shape drawn on a square grid.
Each square has an area of 1 cm^2.
Work out the area of the shape.

Count the squares in the shape.
Split into two rectangles: 3 × 4 = 12 and 3 × 4 = 12
12 + 12 = 24
Answer: 24 cm^2

6 Estimation

Estimate the value of 28 + 76 by rounding each number to the nearest 10.

28 rounds to 30 and 76 rounds to 80
30 + 80 = 110
Answer: 110

7 Bearings from compass points

Bearings are measured clockwise from north.
Write down the three-figure bearing of
(a) north-east
(b) south-east

North is 000°. Each compass point to the right (clockwise) is a further 45°.
(a) north-east is 045°
(b) south-east is 135°
Answer: (a) 045° (b) 135°

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8 Fractions of a shape

What fraction of the shape is shaded?

There are 4 equal parts
3 parts are shaded

Fraction shaded = $\frac{3}{4}$

Answer: $\frac{3}{4}$

9 The nth term

The nth term of a sequence is 3n.
Write down the first three terms of the sequence.

Put n = 1, 2, 3 into 3n
3 × 1 = 3, 3 × 2 = 6, 3 × 3 = 9
Answer: 3, 6, 9

10 Probabilities add up to 1

A game uses a four-coloured spinner.
The table shows the probability of each colour.
The probabilities add up to 1.
Work out the missing probability.

Add the known probabilities: 0.1 + 0.05 + 0.45 = 0.6
1 − 0.6 = 0.4
Answer: 0.4