Day 266 **C Tier 10-a-day: Model Solutions**

1 Substitution

Work out the value of 3b when b = 2.

3b means 3 × b
3 × 2 = 6
Answer: 6

2 Simplifying ratios

Simplify the ratio 9 : 15

Divide both numbers by 3
9 ÷ 3 = 3 and 15 ÷ 3 = 5
Answer: 3 : 5

3 Digit cards

Here are four digit cards:
[7] [9] [4] [8]
Use all four cards to make the smallest possible 4-digit number.

Put the smallest digit in the thousands column, then the next smallest, and so on
Answer: 4789

4 Time from distance and speed

A bus travels 240 km at 40 km/h.
How long does the journey take?

Time = distance ÷ speed
240 ÷ 40 = 6
Answer: 6 hours

5 Map scales

On a map, 1 cm represents 10 km.
Two towns are 50 km apart in real life.
How far apart are they on the map?

1 cm represents 10 km
50 ÷ 10 = 5
Answer: 5 cm

6 Travel graphs

The graph shows a journey. Sam cycles from home to a shop and then back home.
(a) After how many hours did the journey start back home?
(b) How long did the journey home take?

(a) The line starts to go down at 3 hours
(b) 5 − 3 = 2
Answer: (a) 3 hours (b) 2 hours

7 Using formulae

The cost, C pounds, of n tickets is given by the formula C = 4n.
(a) Work out the value of C when n = 6.
(b) Work out the value of n when C = 28.

(a) C = 4 × 6 = 24
(b) 4n = 28, so n = 28 ÷ 4 = 7
Answer: (a) C = 24 (b) n = 7

8 Reading a clock

Write down the time shown on the clock.

The minute hand points to 10, which is 10 × 5 = 50 minutes past, and the hour hand has passed the 4
The time is 4:50
Answer: 4:50

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9 Division in context

Each minibus holds 30 people.
77 people need a lift.
How many minibuses are needed?

77 ÷ 30 = 2 remainder 17
The extra people need another minibus
Answer: 3

10 Equations of lines

A straight line passes through the points
(6, 0), (6, 2), (6, 5)
Write down the equation of the line.

Every point has x-coordinate 6, so the line is vertical
Answer: x = 6