Day 262 **C Tier 10-a-day: Model Solutions**

1 Sequences

Here is a sequence with one number missing.
14, 17, ?, 23, 26
Work out the missing number.

The terms go up by 3 each time
17 + 3 = 20
Answer: 20

2 Simplifying ratios

Write the ratio 40 : 64 in its simplest form.

Divide both numbers by 8
40 ÷ 8 = 5 and 64 ÷ 8 = 8
Answer: 5 : 8

3 Writing expressions

Simplify 4 × n × t

Write the number first, then the letters in alphabetical order, with no × signs
Answer: 4nt

4 Duration of a journey

A train leaves at 5:40 pm and arrives at 7:45 pm.
How long does the journey take?

Count on from 5:40 pm to 7:45 pm:
20 minutes to 6:00 pm
1 hour to 7:00 pm
45 minutes to 7:45 pm
Total: 2 hours 5 minutes
Answer: 2 hours 5 minutes

5 Subtraction

Work out 315 − 234.

315 − 234 = 81
Answer: 81

6 Volume and surface area of a cube

A cube has sides of length 6 cm.
(a) Work out the volume of the cube.
(b) Work out the total surface area of the cube.

(a) Volume = 6 × 6 × 6 = 216
(b) Each face is a square of area 6 × 6 = 36
A cube has 6 faces: 6 × 36 = 216
Answer: (a) 216 cm^3 (b) 216 cm^2

7 Solving equations

Solve $\frac{d}{8} = 3$

$\frac{d}{8}$ means d ÷ 8, so multiply both sides by 8
d = 3 × 8 = 24
Answer: d = 24

Day 262 **C Tier 10-a-day: Model Solutions**

8 Ratio, finding the other part

At a concert, the ratio of adults to children is 3 : 4.
There are 15 adults.
Work out the number of children.

15 ÷ 3 = 5 for each part
4 × 5 = 20
Answer: 20

9 Division in context

Each coach holds 40 people.
82 people need a lift.
How many coaches are needed?

82 ÷ 40 = 2 remainder 2
The extra people need another coach
Answer: 3

10 Perimeter of a square from its area

A square field has an area of 36 m^2.
Work out the perimeter of the field.

Side × side = 36, so the side is 6 m (because 6 × 6 = 36)
Perimeter = 4 × 6 = 24
Answer: 24 m