Day 66 **C Tier 10-a-day: Model Solutions**

1 Function machines

Here is a function machine.
Work out the output when the input is 6.

6 × 6 = 36
36 − 10 = 26
Answer: 26

2 Simplifying fractions

Write $\frac{3}{12}$ in its simplest form.

Divide the top and bottom by 3
$\frac{3}{12} = \frac{1}{4}$
Answer: $\frac{1}{4}$

3 Finish time

A film starts at 4:05 pm.
It lasts 1 hour 15 minutes.
At what time does the film finish?

Add the hours: 4:05 pm + 1 hour = 5:05 pm
Add the minutes: 5:05 pm + 15 minutes = 5:20 pm
Answer: 5:20 pm

4 Substitution

Work out the value of 6d when d = 9.

6d means 6 × d
6 × 9 = 54
Answer: 54

5 Relative frequency

Out of 50 trains, 14 were late.
Estimate the probability of being late.
Give your answer as a decimal.

Relative frequency = $\frac{14}{50}$
14 ÷ 50 = 0.28
Answer: 0.28

6 Division with remainders

35 sweets are shared equally between 4 children.
(a) How many does each child get?
(b) How many are left over?

35 ÷ 4 = 8 remainder 3
Answer: (a) 8 (b) 3

7 Proportion

2 bananas cost 20p.
Work out the cost of 6 bananas.

Cost of one banana: 20p ÷ 2 = 10p
10p × 6 = 60p
Answer: 60p

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8 Circles with an approximate pi

A circle has a diameter of 20 cm.
Work out its circumference.
Use π = 3.14

Circumference = π × diameter
3.14 × 20 = 62.8
Answer: 62.8 cm

9 The nth term

The nth term of a sequence is 5n + 3.
Write down the first three terms of the sequence.

Put n = 1, 2, 3 into 5n + 3
5 × 1 + 3 = 8
5 × 2 + 3 = 13
5 × 3 + 3 = 18
Answer: 8, 13, 18

10 Division in context

Each coach holds 50 people.
177 people need a lift.
How many coaches are needed?

177 ÷ 50 = 3 remainder 27
The extra people need another coach
Answer: 4