Day 83 **C Tier 10-a-day: Model Solutions**

1 Multiplication

Work out 48 × 8.

40 × 8 = 320 and 8 × 8 = 64
320 + 64 = 384
Answer: 384

2 Simplifying ratios

Write the ratio 8 : 16 in its simplest form.

Divide both numbers by 8
8 ÷ 8 = 1 and 16 ÷ 8 = 2
Answer: 1 : 2

3 Perimeter and area of a square

A square tile has sides of length 12 cm.
(a) Work out its perimeter.
(b) Work out its area.

(a) A square has 4 equal sides: 4 × 12 = 48
(b) Area = side × side: 12 × 12 = 144
Answer: (a) 48 cm (b) 144 cm^2

4 Substitution

Work out the value of y + 3 when y = 4.

4 + 3 = 7
Answer: 7

5 Mass and capacity conversions

Change
(a) 8 tonnes into kg
(b) 9 kg into g

(a) 1 tonnes = 1000 kg, so multiply by 1000: 8 × 1000 = 8000
(b) 1 kg = 1000 g, so multiply by 1000: 9 × 1000 = 9000
Answer: (a) 8000 kg (b) 9000 g

6 Ordering fractions

Write these fractions in order, starting with the largest.

$\frac{2}{12}, \frac{10}{12}, \frac{11}{12}$

The denominators are all 12, so compare the numerators
11, 10, 2 (numerators in order)
Answer: $\frac{11}{12}, \frac{10}{12}, \frac{2}{12}$

7 The mean

Here are the numbers of books read by some students.
12 5 10
Work out the mean.

Add up the values: 12 + 5 + 10 = 27
Divide by 3: 27 ÷ 3 = 9
Answer: 9

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8 Cost from area

A rectangular lawn is 3 m long and 3 m wide.
Turf costs £8 per m^2.
Work out the cost of covering the lawn.

Area = 3 × 3 = 9 m^2
Cost = 9 × £8 = £72
Answer: £72

9 Function machines

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

Work backwards using the opposite operations
6 − 3 = 3
3 + 4 = 7
Answer: 7

10 Division in context

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

102 ÷ 30 = 3 remainder 12
The extra people need another minibus
Answer: 4