Day 139 **C Tier 10-a-day: Model Solutions**

1 Substitution

Work out the value of 4x when x = 2.

4x means 4 × x
4 × 2 = 8
Answer: 8

2 Angles in a right angle

A right angle is split into two angles by a line.
Work out the size of angle q.
The diagram is not drawn accurately.

The square corner is a right angle, which is 90°
90 − 60 = 30
Answer: q = 30°

3 Multiplying and dividing by 10 and 100

Work out 0.6 × 10.

Multiplying by 10 moves each digit 1 place to the left
Answer: 6

4 Finish time

A concert begins at 11:55 am.
It lasts 55 minutes.
At what time does it finish?

Add the minutes: 11:55 am + 55 minutes = 12:50 pm
Answer: 12:50 pm

5 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: 0.4 + 0.2 + 0.1 = 0.7
1 − 0.7 = 0.3
Answer: 0.3

6 Using formulae

The distance, d km, travelled in t hours is given by the formula d = 9t.
(a) Work out the value of d when t = 3.
(b) Work out the value of t when d = 81.

(a) d = 9 × 3 = 27
(b) 9t = 81, so t = 81 ÷ 9 = 9
Answer: (a) d = 27 (b) t = 9

7 Simplifying fractions

Write $\frac{12}{15}$ in its simplest form.

Divide the top and bottom by 3
$\frac{12}{15} = \frac{4}{5}$

Answer: $\frac{4}{5}$

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8 Pie chart angles

60 students were asked about their favourite subject.
9 of them chose science.
The results are shown in a pie chart.
Work out the angle of the sector for those students.

360° ÷ 60 = 6° for each student
9 × 6° = 54°
Answer: 54°

9 Division with remainders

25 marbles are shared equally between 7 children.
(a) How many does each child get?
(b) How many are left over?

25 ÷ 7 = 3 remainder 4
Answer: (a) 3 (b) 4

10 The median

Here are the shoe sizes of some students.
4 4 7 7 3
Work out the median.

Put the numbers in order: 3 4 4 7 7
The middle number is 4
Answer: 4