Day 223 **C Tier 10-a-day: Model Solutions**

1 Substitution

Work out the value of 9a when a = 7.

9a means 9 × a
9 × 7 = 63
Answer: 63

2 The range

Here are the ages of some children.
14 10 13 12 12 9
Work out the range.

Range = largest value − smallest value
14 − 9 = 5
Answer: 5

3 Angles in a triangle

The diagram shows a triangle.
Work out the size of angle y.
The diagram is not drawn accurately.

Angles in a triangle add up to 180°
45 + 70 = 115
180 − 115 = 65
Answer: y = 65°

4 Prime numbers

Write down the prime number in this list.
49, 37, 9, 35

A prime number has exactly two factors, 1 and itself
49 = 7 × 7
9 = 3 × 3
35 = 5 × 7
Answer: 37

5 Sequences

Here are the first four terms of a sequence.
49, 40, 31, 22
Write down the next term.

The terms go down by 9 each time
22 − 9 = 13
Answer: 13

6 24-hour clock

Write 08:10 using am or pm.

Times before 12:00 are am
Answer: 8:10 am

7 Probabilities add up to 1

A bag has four colours.
The table shows the probability of each colour.
The probabilities add up to 1.
Work out the missing probability.

Add the known probabilities: 0.1 + 0.4 + 0.05 = 0.55
1 − 0.55 = 0.45
Answer: 0.45

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8 Shaded area

The diagram shows a rectangle with a smaller rectangle cut out of it.
Work out the area of the shaded part.
The diagram is not drawn accurately.

Big rectangle: 11 × 8 = 88
Small rectangle: 8 × 6 = 48
Shaded area: 88 − 48 = 40

Answer: 40 cm^2

9 Forming and solving equations

There are x children in a club.
8 children leave.
There are now 8 children in the club.
(a) Write down an equation using x.
(b) Solve your equation to find how many children were in the club at first.

(a) x − 8 = 8
(b) x = 8 + 8 = 16

Answer: (a) x − 8 = 8 (b) x = 16

10 Average speed

A bus travels 36 km in 3 hours.
Work out its average speed.

Speed = distance ÷ time
36 ÷ 3 = 12

Answer: 12 km/h