Day 170 **C Tier 10-a-day: Model Solutions**

1 Compass directions and turns

A cyclist is facing east.
A cyclist turns 90° clockwise.
Which direction is the cyclist facing now?

90° is 1 quarter turn
Turning clockwise from east: east → south
Answer: south

2 Multiples

Here is a list of numbers.
34, 55, 67, 45, 32
Write down the multiple of 8.

Check which number is in the 8 times table
8 × 4 = 32
Answer: 32

3 Function machines

Here is a function machine.
Work out the output when the input is 3.

3 × 4 = 12
12 + 8 = 20
Answer: 20

4 Finish time

A lesson starts at 11:10 am.
It lasts 30 minutes.
At what time does the lesson end?

Add the minutes: 11:10 am + 30 minutes = 11:40 am
Answer: 11:40 am

5 Scatter graphs

Here is a scatter graph of hot drinks sold against outside temperature.
Describe the correlation.

As outside temperature increases, hot drinks sold decreases
This is negative correlation
Answer: Negative correlation

6 Enlargement

A triangle has sides of length 3 cm, 4 cm and 5 cm.
It is enlarged by scale factor 3.
Write down the lengths of the sides of the enlarged triangle.

Multiply each side by 3
3 × 3 = 9, 4 × 3 = 12, 5 × 3 = 15
Answer: 9 cm, 12 cm, 15 cm

7 Substitution

d = 3 and x = 2
Work out the value of
(a) dx
(b) d + x

(a) 3 × 2 = 6
(b) 3 + 2 = 5
Answer: (a) 6 (b) 5

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8 Relative frequency

A biased dice is rolled 25 times. It lands on a six 7 times.
Estimate the probability that it lands on a six next time.
Give your answer as a fraction in its simplest form.

Relative frequency = $\frac{7}{25}$

Answer: $\frac{7}{25}$

9 Forming and solving equations

There are x children in a club.
3 children leave.
There are now 3 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) $x - 3 = 3$
(b) $x = 3 + 3 = 6$
Answer: (a) $x - 3 = 3$ (b) $x = 6$

10 Division in context

Each van holds 20 people.
57 people need a lift.
How many vans are needed?

57 ÷ 20 = 2 remainder 17
The extra people need another van
Answer: 3