Day 289 **C Tier 10-a-day: Model Solutions**

1 Volume of a cuboid

The diagram shows a cuboid.
Work out the volume of the cuboid.
The diagram is not drawn accurately.

Volume = length × width × height
8 × 6 × 5
8 × 6 = 48, then 48 × 5 = 240
Answer: 240 cm^3

2 Probability with dice

A fair 10-sided dice numbered 1 to 10 is rolled.
Write down the probability of rolling
(a) a multiple of 4
(b) a number greater than 4

(a) 2 out of 10 numbers: $\frac{2}{10} = \frac{1}{5}$
(b) 6 out of 10 numbers: $\frac{6}{10} = \frac{3}{5}$
Answer: (a) $\frac{1}{5}$ (b) $\frac{3}{5}$

3 Sequences

Here are the first four terms of a sequence.
27, 39, 51, 63
Write down the next term.

The terms go up by 12 each time
63 + 12 = 75
Answer: 75

4 Fractions of amounts

Work out $\frac{1}{2}$ of 16 metres.

Divide by 2
16 ÷ 2 = 8
Answer: 8 metres

5 Reading straight line graphs

The graph shows the cost of printing photos.
(a) Work out the cost of printing 5 photos.
(b) Max spends £8 printing photos. How many photos does Max print?

(a) Go up from 5 on the bottom axis to the line, then across: £24
(b) Go across from 8 on the cost axis to the line, then down: 1
Answer: (a) £24 (b) 1

6 Relative frequency

A coin is flipped 100 times and lands on heads 7 times.
Estimate the probability that it lands on heads next time.
Give your answer as a fraction in its simplest form.

Relative frequency = $\frac{7}{100}$

Answer: $\frac{7}{100}$

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7 Pattern sequences

The diagram shows the first three patterns in a sequence made by Beth.
Each pattern is made from dots.
How many dots are in Pattern 5?

Pattern n is n rows of (n + 1): 1 × 2, 2 × 3, 3 × 4
Pattern 5 is 5 × 6 = 30
Answer: 30

8 Division with remainders

17 sweets are shared equally between 3 children.
(a) How many does each child get?
(b) How many are left over?

17 ÷ 3 = 5 remainder 2
Answer: (a) 5 (b) 2

9 Cost from perimeter

A rectangular play area is 12 m long and 9 m wide.
Fencing costs £10 per metre.
Work out the cost of putting fence all the way round the play area.

Perimeter = 12 + 9 + 12 + 9 = 42 m
Cost = 42 × £10 = £420
Answer: £420

10 Pie chart angles

20 students were asked about their favourite sport.
2 of them chose football.
The results are shown in a pie chart.
Work out the angle of the sector for those students.

360° ÷ 20 = 18° for each student
2 × 18° = 36°
Answer: 36°