Day 344 **C Tier 10-a-day: Model Solutions**

1 Substitution

Work out the value of 5n when n = 9.

5n means 5 × n
5 × 9 = 45
Answer: 45

2 Division

Work out 230 ÷ 5.

5 × 46 = 230
So 230 ÷ 5 = 46
Answer: 46

3 Probability with dice

A fair 10-sided dice numbered 1 to 10 is rolled.
Write down the probability of rolling
(a) a 8
(b) a number greater than 5

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

4 24-hour clock

Write 18:20 using the 12-hour clock.
Use am or pm in your answer.

Times after 12:00 are pm: subtract 12 from the hour, 18 − 12 = 6
18:20 = 6:20 pm
Answer: 6:20 pm

5 Ordering fractions

Write these fractions in order, starting with the smallest.
$\frac{2}{5}, \frac{3}{5}, \frac{1}{5}$

The denominators are all 5, so compare the numerators
1, 2, 3 (numerators in order)
Answer: $\frac{1}{5}, \frac{2}{5}, \frac{3}{5}$

6 Pictograms

The pictogram shows the number of students absent from school.
How many students were absent on Mon?

Mon has 1.5 symbols
1.5 × 4 = 6
Answer: 6

7 Tables of values

Complete the table of values for y = x + 6.

When x = 1: y = 1 + 6 = 7
When x = 2: y = 2 + 6 = 8
Answer: x = 1: y = 7; x = 2: y = 8

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8 Volume and surface area of a cube

A cube has sides of length 9 cm.
(a) Work out the volume of the cube.
(b) Work out the total surface area of the cube.

(a) Volume = 9 × 9 × 9 = 729
(b) Each face is a square of area 9 × 9 = 81
A cube has 6 faces: 6 × 81 = 486
Answer: (a) 729 cm^3 (b) 486 cm^2

9 Finding a missing value from the mean

The mean of five numbers is 11.
Four of the numbers are 22, 2, 22 and 2.
Work out the other number.

Total of all the numbers: 11 × 5 = 55
Total of those given: 22 + 2 + 22 + 2 = 48
55 − 48 = 7
Answer: 7

10 Simplifying expressions

Simplify 3b + 5 + 4b + 1

Letters: 3b + 4b = 7b
Numbers: 5 + 1 = 6
Answer: 7b + 6