Day 12 **C Tier 10-a-day: Model Solutions**

1 Which expression

Which of these means m multiplied by itself?

$m + 7$, $7m$, m^2, $\frac{m}{7}$

$m \times m$ is written m^2

Answer: m^2

2 Perimeter on a square grid

The diagram shows a shape drawn on a square grid.
Each square has a side of length 1 m.
Work out the perimeter of the shape.

Count the length of each side going round the shape.
6 + 2 + 1 + 1 + 5 + 3 = 18

Answer: 18 m

3 The mean

Here are the ages of some children.
5 6 13 8
Work out the mean.

Add up the values: 5 + 6 + 13 + 8 = 32
Divide by 4: 32 ÷ 4 = 8

Answer: 8

4 Rotational symmetry

Write down the order of rotational symmetry of
(a) a scalene triangle
(b) a regular octagon

(a) A scalene triangle fits onto itself 1 time in a full turn
(b) A regular octagon fits onto itself 8 times in a full turn

Answer: (a) 1 (b) 8

5 Ordering negative numbers

The temperatures in five towns are shown (in °C).
2, −3, −2, 8, 4
Write them in order, starting with the highest.

Use a number line: negative numbers are smaller the further they are from 0

Answer: 8, 4, 2, −2, −3

6 Simplifying expressions

Simplify $5x + 2x + 7b + 7b$

Collect the b terms: 7 + 7 = 14b
Collect the x terms: 5 + 2 = 7x

Answer: 14b + 7x

7 Estimation

Estimate the value of 64 − 38 by rounding each number to the nearest 10.

64 rounds to 60 and 38 rounds to 40
60 − 40 = 20

Answer: 20

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8 Equations of lines

A straight line passes through the points
(2, 2), (4, 4), (6, 6)
Write down the equation of the line.

In every point the y-coordinate is equal to the x-coordinate
Answer: y = x

9 Equivalent fractions

Find the missing number.

$\frac{3}{4} = \frac{?}{16}$

4 × 4 = 16, so multiply the top by 4 as well
3 × 4 = 12
Answer: 12

10 Sampling

Ben wants to find out how many people eat fast food.
Ben asks people outside a fast food restaurant.
Give a reason why this sample may be biased.

They are more likely to eat fast food than other people
Answer: They are more likely to eat fast food than other people