Day 324 **C Tier 10-a-day: Model Solutions**

1 Collecting like terms

Simplify $6a - a$

All the terms are in a, so just add or subtract the numbers in front of a

Answer: 5a

2 Length conversions

Change 70 mm into cm.

10 mm = 1 cm, so divide by 10: 70 ÷ 10 = 7

Answer: 7 cm

3 Metric units

Change 5 km to metres.

1 km = 1000 m

5 × 1000 = 5000

Answer: 5000 m

4 Solving equations

Solve $x - 5 = 7$

Add 5 to both sides

x = 7 + 5 = 12

Answer: x = 12

5 Probability from a bag

A bag contains 8 blue, 2 red and 2 purple marbles.
One is taken at random.
Write down the probability that it is purple.

There are 12 in total, and 2 are purple

Probability = $\frac{2}{12} = \frac{1}{6}$

Answer: $\frac{1}{6}$

6 Prime numbers

Write down the prime number in this list.
33, 49, 51, 43

A prime number has exactly two factors, 1 and itself

33 = 3 × 11

49 = 7 × 7

51 = 3 × 17

Answer: 43

7 Stem and leaf diagrams

The stem and leaf diagram shows the times, in seconds, taken by runners.
Work out the range.

Largest = 38, smallest = 12

38 − 12 = 26

Answer: 26

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8 Reflection on a grid

The point P is drawn on the grid.
P is reflected in the line x = 3.
Write down the coordinates of the image of P.

P is (2, 2)
P is 1 squares to the left of the line, so the image is 1 squares to the right
x-coordinate: 3 + 1 = 4
Answer: (4, 2)

9 Order of operations

Work out 5 × 5 + 6.

Multiply first
5 × 5 = 25
25 + 6 = 31
Answer: 31

10 Pie chart angles

36 students were asked about their favourite subject.
6 of them chose science.
The results are shown in a pie chart.
Work out the angle of the sector for those students.

360° ÷ 36 = 10° for each student
6 × 10° = 60°
Answer: 60°