**Day 257** **C Tier 10-a-day: Model Solutions**

## 1 Substitution

Work out the value of 8m when m = 2.

8m means 8 × m
8 × 2 = 16
**Answer: 16**

## 2 Time conversions

Change 2 days into hours.

1 days = 24 hours, so multiply by 24: 2 × 24 = 48
**Answer: 48 hours**

## 3 Rates

A machine makes 4 bottles each hour.
How many hours does it take to reach 16 bottles?

16 ÷ 4 = 4
**Answer: 4 hours**

## 4 Subtracting decimals

Work out 7.2 − 1.9.

Line up the decimal points
7.2 − 1.9 = 5.3
**Answer: 5.3**

## 5 Probability from a bag

A bag contains 1 red, 8 blue and 5 purple marbles.
One is taken at random.
Write down the probability that it is blue.

There are 14 in total, and 8 are blue
Probability = $\frac{8}{14} = \frac{4}{7}$
**Answer:** $\frac{4}{7}$

## 6 Missing side from area

A rectangular wall has an area of 132 $m^2$.
Its length is 12 m.
Work out its width.

Area = length × width
132 = 12 × width
width = 132 ÷ 12 = 11
**Answer: 11 m**

## 7 Ordering decimals

Write these numbers in order, starting with the smallest.
0.25, 0.31, 0.4, 0.35

Write each with the same number of decimal places
0.25, 0.31, 0.35, 0.40
**Answer: 0.25, 0.31, 0.35, 0.4**

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## 8 Midpoint of a line

A is the point (0, −1).
B is the point (0, 1).
Work out the coordinates of the midpoint of AB.

Find the number halfway between the x-coordinates: (0 + 0) ÷ 2 = 0
Find the number halfway between the y-coordinates: (−1 + 1) ÷ 2 = 0
**Answer: (0, 0)**

## 9 Pie chart angles

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

360° ÷ 45 = 8° for each student
6 × 8° = 48°
**Answer: 48°**

## 10 Forming and solving equations

There are x children in a club.
4 children leave.
There are now 10 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 − 4 = 10
(b) x = 10 + 4 = 14
**Answer: (a) x − 4 = 10 (b) x = 14**