Day 242 **B Tier 10-a-day: Model Solutions**

1 Money

Jasmine buys 4 pens at £2.30 each and 2 sandwiches at 45p each.
She pays with a £50 note.
Work out how much change she gets.

4 × £2.30 = £9.20
2 × 45p = 90p
Total = £9.20 + 90p = £10.10
Change = £50 − £10.10 = £39.90
Answer: £39.90

2 Solving equations

Solve 8n − 4 = 76

Add 4 from both sides: 8n = 80
Divide both sides by 8
Answer: n = 10

3 Place value

Here are four digit cards.
9 3 7 5
Use all four cards to make the largest possible number.
Work out the difference between the largest and smallest possible numbers.

Largest: put the digits in order, biggest first: 9753
Smallest: put the digits in order, smallest first: 3579
9753 − 3579 = 6174
Answer: 6174

4 Scale drawings and maps

A railway line is 80 m long.
It is drawn on a map with scale 1 : 1000.
Work out the length of the railway line on the map, in cm.

80 m = 8000 cm
8000 ÷ 1000 = 8 cm
Answer: 8 cm

5 Percentage change

The number of members of a club goes from 800 to 520.
Work out the percentage decrease.

Decrease = 800 − 520 = 280
Percentage decrease = $\frac{280}{800}$ × 100 = 35%
Answer: 35% decrease

6 Loci

A point P is always exactly 8 m from a sprinkler, L.
Describe the locus of the point P.

The points are all the same distance from L
This forms a circle
Answer: A circle with centre L and radius 8 m

7 Currency conversion

£1 = 1.25 euros
A holiday costs €75.
Work out the cost in pounds.

Divide by the rate: 75 ÷ 1.25
= £60
Answer: £60

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8 Algebraic fractions

Simplify fully $\frac{6x + 36}{6}$

Factorise the top: 6(x + 6)
Cancel the 6 on the top and bottom
Answer: x + 6

9 Two-way tables

The table shows some information about 82 students.
A person is chosen at random.
Find the probability that the person is in the group "Girls" and chose "Walk".

Girls who chose Walk = 82 − 43 − 22 = 17
P = 17 out of 82
Answer: $\frac{17}{82}$

10 Ratio to fraction and percentage

The ratio of red to blue counters in a bag is 7 : 1.
What fraction of them are red?

Total parts = 7 + 1 = 8
red are 7 out of 8 parts
Answer: $\frac{7}{8}$