Day 108 **C Tier 10-a-day: Model Solutions**

1 Place value

Write down the value of the digit 8 in the number 38,124.

The digit 8 is in the thousands column
8 × 1000 = 8000
Answer: 8000

2 Substitution

Work out the value of q + 9 when q = 10.

10 + 9 = 19
Answer: 19

3 Negative numbers: temperature

At midday the temperature in Oslo is 5°C.
At midnight it is −9°C.
How many degrees lower is the temperature at midnight?

Count from −9 up to 0, then from 0 up to 5
9 + 5 = 14
Answer: 14°C

4 Coordinates

Write down the coordinates of
(a) point V
(b) point F

Go across first (x), then up (y)
V is 1 across and 7 up
F is 7 across and 1 up
Answer: (a) (1, 7) (b) (7, 1)

5 Fractions of a group

In a bag of 8 sweets, 6 are red.
What fraction of the sweets are red? Give your answer in its simplest form.

$\frac{6}{8}$

Divide top and bottom by 2: $\frac{3}{4}$

Answer: $\frac{3}{4}$

6 Perimeter of a regular polygon

A regular pentagon has sides of length 7 cm.
Work out its perimeter.

A regular pentagon has 5 equal sides
5 × 7 = 35
Answer: 35 cm

7 Probability of an event not happening

The probability that it rains tomorrow is $\frac{11}{12}$.

Work out the probability that this does not happen.

P(not) = 1 − P(event)

$1 - \frac{11}{12} = \frac{1}{12}$

Answer: $\frac{1}{12}$

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8 Reflection on a grid

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

P is (3, 2)
P is 1 squares below the line, so the image is 1 squares above
y-coordinate: 3 + 1 = 4
Answer: (3, 4)

9 Equivalent fractions

Find the missing number.

$\frac{1}{2} = \frac{5}{?}$

1 × 5 = 5, so multiply the bottom by 5 as well
2 × 5 = 10
Answer: 10

10 Sampling

Beth wants to find out what music people in a town like.
Beth asks only people at a rock concert.
Give a reason why this sample may be biased.

People at a rock concert are more likely to like rock music
Answer: People at a rock concert are more likely to like rock music