Day 60 **C Tier 10-a-day: Model Solutions**

1 Collecting like terms

Simplify w + 8w

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

Answer: 9w

2 Time conversions

Change
(a) 120 hours into days
(b) 96 hours into days

(a) 24 hours = 1 days, so divide by 24: 120 ÷ 24 = 5
(b) 24 hours = 1 days, so divide by 24: 96 ÷ 24 = 4

Answer: (a) 5 days (b) 4 days

3 Substitution

Work out the value of 6n when n = 4.

6n means 6 × n
6 × 4 = 24

Answer: 24

4 Vertically opposite angles

The diagram shows two straight lines crossing.
(a) Work out the size of angle x.
(b) Work out the size of angle p.
The diagram is not drawn accurately.

(a) Vertically opposite angles are equal
x = 135°
(b) Angles on a straight line add up to 180°
180 − 135 = 45

Answer: (a) x = 135° (b) p = 45°

5 Tables of values

The table shows some values of x and y.
(a) Write down the value of y when x = 4.
(b) Write down the value of x when y = 13.

(a) Find 4 in the top row; the number underneath is 21
(b) Find 13 in the bottom row; the number above is 2

Answer: (a) 21 (b) 2

6 Ratio, finding the other part

In a bowl, the ratio of apples to oranges is 4 : 3.
There are 21 oranges.
Work out the number of apples.

21 ÷ 3 = 7 for each part
4 × 7 = 28

Answer: 28

7 Ordering negative numbers

Write these numbers in order, starting with the largest.
−8, −2, 0, 4, −1

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

Answer: 4, 0, −1, −2, −8

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8 Shaded area

The diagram shows a rectangle with a smaller rectangle cut out of it.
Work out the area of the shaded part.
The diagram is not drawn accurately.

Big rectangle: $9 \times 7 = 63$
Small rectangle: $5 \times 4 = 20$
Shaded area: $63 - 20 = 43$

Answer: 43 m^2

9 Finding a missing value from the mean

The mean of five numbers is 10.
Four of the numbers are 12, 6, 9 and 5.
Work out the other number.

Total of all the numbers: $10 \times 5 = 50$
Total of those given: $12 + 6 + 9 + 5 = 32$
$50 - 32 = 18$

Answer: 18

10 Order of operations

Work out $9 + 5 \times 7$.

Multiply first
$5 \times 7 = 35$
$9 + 35 = 44$

Answer: 44