Day 272 **C Tier 10-a-day: Model Solutions**

1 Substitution

Work out the value of 20 − a when a = 2.

20 − 2 = 18

Answer: 18

2 Subtraction

Work out 873 − 426.

873 − 426 = 447

Answer: 447

3 The range

Here are the times, in minutes, of some bus journeys.
22 11 8 12 13 7 10 12
Work out the range.

Range = largest value − smallest value
22 − 7 = 15

Answer: 15

4 Translating a point

The point A has coordinates (1, 2).
A is moved 2 right and 6 up.
Write down the coordinates of the new point.

x-coordinate: 1 + 2 = 3
y-coordinate: 2 + 6 = 8

Answer: (3, 8)

5 Using formulae

The cost, C pounds, of n tickets is given by the formula C = 5n.
(a) Work out the value of C when n = 8.
(b) Work out the value of n when C = 30.

(a) C = 5 × 8 = 40
(b) 5n = 30, so n = 30 ÷ 5 = 6

Answer: (a) C = 40 (b) n = 6

6 Isosceles triangles

The diagram shows an isosceles triangle.
Work out the size of angle a.
The diagram is not drawn accurately.

The triangle is isosceles, so the two base angles are equal
180 − 60 = 120
120 ÷ 2 = 60

Answer: a = 60°

7 Sharing in a ratio

Leah and Tom share £36 in the ratio 1 : 5.
Work out how much each person gets.

Number of parts = 1 + 5 = 6
One part = 36 ÷ 6 = 6
Leah: 1 × 6 = 6 Tom: 5 × 6 = 30

Answer: Leah £6, Tom £30

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8 Powers

Work out 2^3.

$2^3 = 2 \times 2 \times 2$
$= 8$
Answer: 8

9 The nth term

The nth term of a sequence is 3n + 2.
Write down the first three terms of the sequence.

Put n = 1, 2, 3 into 3n + 2
$3 \times 1 + 2 = 5$
$3 \times 2 + 2 = 8$
$3 \times 3 + 2 = 11$
Answer: 5, 8, 11

10 Perimeter from area

A rectangular poster has an area of 112 cm^2.
Its width is 8 cm.
Work out the perimeter of the poster.

Length = area ÷ width = 112 ÷ 8 = 14
Perimeter = 14 + 8 + 14 + 8 = 44
Answer: 44 cm