Day 140 **C Tier 10-a-day: Model Solutions**

1 Rates

A tap fills a bath at 20 litres each minute.
How many minutes does it take to reach 140 litres?

140 ÷ 20 = 7
Answer: 7 minutes

2 Which expression

Which of these means 7 added to x?

7x, x^2, x + 7, $\frac{x}{7}$

7 added to x is written x + 7
Answer: x + 7

3 Bar charts

The bar chart shows the ways some students travel to school.
Work out the total number of students.

6 + 13 + 10 + 7 + 11 = 47
Answer: 47

4 Angles in a quadrilateral

The diagram shows a quadrilateral.
Work out the size of angle b.
The diagram is not drawn accurately.

Angles in a quadrilateral add up to 360°
100 + 60 + 105 = 265
360 − 265 = 95
Answer: b = 95°

5 Fractions, decimals and percentages

Write $\frac{1}{4}$ as a percentage.

Make the bottom 100: $\frac{1}{4} = \frac{25}{100}$

Answer: 25%

6 Pattern sequences

The diagram shows the first three patterns in a sequence made by Zoe.
Each pattern is made from counters.
How many counters are in Pattern 4?

Each pattern is a square: 1 × 1, 2 × 2, 3 × 3
Pattern 4 is 4 × 4 = 16
Answer: 16

7 Bearings from compass points

Bearings are measured clockwise from north.
Write down the three-figure bearing of
(a) north-east
(b) south-west

North is 000°. Each compass point to the right (clockwise) is a further 45°.
(a) north-east is 045°
(b) south-west is 225°
Answer: (a) 045° (b) 225°

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8 Ordering negative numbers

The temperatures in five towns are shown (in °C).
3, 6, 1, −3, 4
Write them in order, starting with the highest.

Use a number line: negative numbers are smaller the further they are from 0
Answer: 6, 4, 3, 1, −3

9 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: 11 × 7 = 77
Small rectangle: 7 × 5 = 35
Shaded area: 77 − 35 = 42
Answer: 42 m^2

10 Substitution

Work out the value of 4a + 9 when a = 5.

4a = 4 × 5 = 20
20 + 9 = 29
Answer: 29