Day 116 **C Tier 10-a-day: Model Solutions**

1 Substitution

q = 6 and x = 9
Work out the value of
(a) q + x
(b) q + 3x

(a) 6 + 9 = 15
(b) 6 + 3 × 9 = 33
Answer: (a) 15 (b) 33

2 Pay rates

Ben is paid £9 for each hour of work.
Ben is paid £54 in total.
How many hours did Ben work?

£54 ÷ £9 = 6
Answer: 6 hours

3 Solving equations

Solve 7z = 21

7z means 7 × z, so divide both sides by 7
z = 21 ÷ 7 = 3
Answer: z = 3

4 Enlargement

A square has sides of length 9 cm.
It is enlarged by scale factor 2.
Work out the length of a side of the enlarged square.

Multiply the side by the scale factor
9 × 2 = 18
Answer: 18 cm

5 Pattern sequences

The diagram shows the first three patterns in a sequence made by Leah.
Each pattern is made from dots.
How many dots are in Pattern 5?

Pattern n is n rows of (n + 1): 1 × 2, 2 × 3, 3 × 4
Pattern 5 is 5 × 6 = 30
Answer: 30

6 Ordering negative numbers

Write these numbers in order, starting with the smallest.
−3, −5, 2, 3, −7

Use a number line: negative numbers are smaller the further they are from 0
Answer: −7, −5, −3, 2, 3

7 Currency conversion

£1 = €1.10
Change £100 into euros.

£100 × 1.10 = €110
Answer: €110

8 Halves, quarters and thirds

Write down double 20.

20 × 2 = 40
Answer: 40

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9 Perimeter of an L-shape

The diagram shows an L-shape.
All the corners are right angles.
Work out the perimeter of the shape.
The diagram is not drawn accurately.

Find the two missing sides.
Missing horizontal side: 9 − 5 = 4
Missing vertical side: 12 − 9 = 3
Add all six sides: 9 + 9 + 4 + 3 + 5 + 12 = 42
Answer: 42 cm

10 Relative frequency

A spinner is spun 40 times and lands on red 5 times.
Estimate the probability that it lands on red next time.
Give your answer as a fraction in its simplest form.

Relative frequency = $\frac{5}{40}$

= $\frac{1}{8}$

Answer: $\frac{1}{8}$