Day 349 **C Tier 10-a-day: Model Solutions**

1 Substitution

Work out the value of 7 + k when k = 4.

7 + 4 = 11

Answer: 11

2 Compass directions and turns

A cyclist is facing east.
A cyclist turns 270° clockwise.
Which direction is the cyclist facing now?

270° is 3 quarter turns
Turning clockwise from east: east → south → west → north
Answer: north

3 Rates

A tap fills a bath at 20 litres each minute.
How many litres are in the bath after 2 minutes?

20 × 2 = 40
Answer: 40 litres

4 Ordering decimals

Write these numbers in order, starting with the smallest.
0.15, 0.11, 0.1, 0.2

Write each with the same number of decimal places
0.10, 0.11, 0.15, 0.20
Answer: 0.1, 0.11, 0.15, 0.2

5 Coordinates

(a) Write down the coordinates of point S.
(b) Which point has coordinates (2, 2)?

(a) S is left 2 and down 1
(b) Go right 2 and up 2: this is point P
Answer: (a) (−2, −1) (b) P

6 Bearings from compass points

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

North is 000°. Each compass point to the right (clockwise) is a further 45°.
(a) south-east is 135°
(b) south-west is 225°
Answer: (a) 135° (b) 225°

7 Pattern sequences

The diagram shows the first three patterns in a sequence made by Gita.
Each pattern is made from counters.
How many counters are in Pattern 6?

Each pattern is a square: 1 × 1, 2 × 2, 3 × 3
Pattern 6 is 6 × 6 = 36
Answer: 36

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8 Multiplying multiples of 10

Work out 80 × 2.

Work out 8 × 2 = 16
Then put the zeros back on
Answer: 160

9 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 (1, 2)
P is 1 squares below the line, so the image is 1 squares above
y-coordinate: 3 + 1 = 4
Answer: (1, 4)

10 Finding a missing value from the mean

The mean of four numbers is 9.
Three of the numbers are 7, 12 and 3.
Work out the other number.

Total of all the numbers: 9 × 4 = 36
Total of those given: 7 + 12 + 3 = 22
36 − 22 = 14
Answer: 14