Day 43 **B Tier 10-a-day: Model Solutions**

1 Place value

Here are four digit cards.

3 2 7 6

Use all four cards to make the largest possible even number.

The last digit must be even. Put the biggest remaining digits first.

The largest even number is 7632

Answer: 7632

2 Unitary method

4 pens cost 60p.

(a) Work out the cost of 10 pens.

(b) How many pens can be bought for 45p?

(a) 1 pen costs 60p ÷ 4 = 15p

10 × 15p = £1.50

(b) 45p ÷ 15p = 3

Answer: (a) £1.50 (b) 3

3 Area of 2D shapes

Here is a trapezium.

Work out the area of the trapezium.

The diagram is not drawn accurately.

Area of a trapezium = ½ × (a + b) × h

½ × (19 + 5) × 12 = ½ × 24 × 12

= 144

Answer: 144 mm^2

4 Fractions of amounts

Mohammed has £250.

They spends $\frac{3}{5}$ of the money on a book.

They then spends $\frac{2}{5}$ of the money left on a drink.

How much money is left?

Book: £250 ÷ 5 × 3 = £150

Left: £250 − £150 = £100

Drink: £100 ÷ 5 × 2 = £40

Money left: £100 − £40 = £60

Answer: £60

5 Points on a line

The point (1, k) lies on the line y = −5x + 6

Work out the value of k.

Substitute x = 1: k = −5 × 1 + 6

k = 1

Answer: k = 1

6 Independent events

The probability that it rains on Saturday is 0.9.

The probability that it rains on Sunday is 0.1.

The events are independent.

Work out the probability that it rains on both days.

P(both) = P(Saturday) × P(Sunday)

0.9 × 0.1 = 0.09

Answer: 0.09

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7 Reflection

The diagram shows triangle ABC on a grid.
(a) Write down the coordinates of the image of A after a reflection in the x-axis.
(b) Write down the coordinates of the image of C after a reflection in the y-axis.

(a) A is at (4, 4). Reflect in the x-axis: (4, −4)
(b) C is at (2, 4). Reflect in the y-axis: (−2, 4)
Answer: (a) (4, −4) (b) (−2, 4)

8 Fraction problems

A paddling pool is $\frac{1}{4}$ full.

45 litres of water are added.

The paddling pool is now $\frac{1}{2}$ full.

Work out the capacity of the paddling pool.

Fraction added = $\frac{1}{2} - \frac{1}{4} = \frac{1}{4}$

$\frac{1}{4}$ of the capacity = 45 litres
Whole capacity = 45 × 4 = 180 litres
Answer: 180 litres

9 Simultaneous equations problem

A takeaway sells burgers and portions of chips.
2 burgers and 1 portion of chips cost £14.
1 burger and 1 portion of chips cost £8.
Work out the cost of one burger and the cost of one portion of chips.

Let a = cost of one burger and b = cost of one portion of chips
2a + 1b = 14 and 1a + 1b = 8
Subtract: 1a = 14 − 8 = 6, so a = 6
Substitute: 2 × 6 + 1b = 14, so 1b = 2 and b = 2
Answer: One burger costs £6 and one portion of chips costs £2

10 Sharing in a ratio

Ravi, Omar and Harry share £630 in the ratio 2 : 4 : 3.
Work out how much Ravi gets.

2 + 4 + 3 = 9 parts
1 part = 630 ÷ 9 = 70
Ravi gets 2 × 70 = £140
Answer: £140