

# Ratio Problems

## June 2023 Paper 3

15 There are only red beads and green beads in a bag.

number of red beads : number of green beads = 1 : 4

There are 35 red beads in the bag.

Work out the total number of beads in the bag.

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**(Total for Question 15 is 2 marks)**

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## June 2020 Paper 1

- 15 Jamil makes a drink by mixing  
1 part of orange squash with 9 parts of water.

He uses 750 millilitres of orange squash.

Jamil is going to put the drink he has mixed into 1 litre bottles.

Work out the greatest number of 1 litre bottles that Jamil can completely fill.

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**(Total for Question 15 is 3 marks)**

## November 2024 Paper 1

- 17 Gita wants to make 24 litres of green paint.  
She is going to mix blue paint, yellow paint and white paint in the ratio 4 : 3 : 1

She has

- 12 litres of blue paint
- 7 litres of yellow paint
- 5 litres of white paint.

Does Gita have enough blue paint, yellow paint and white paint to make 24 litres of green paint?

You must show how you get your answer.

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**(Total for Question 17 is 3 marks)**

## November 2022 Paper 1

17 The ratio of the number of blue counters to the number of green counters is 2 : 3

(b) Work out the number of green counters in the bag.

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(2)

Bradley says,

“The number of red counters in the bag is the same as the number of yellow counters in the bag.”

(c) Can Bradley be correct?

Give a reason for your answer.

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.....  
(1)

## November 2022 Paper 1

- 18 There are 240 cans of drink on a shelf.  
Each can contains cola or lemonade or orange.

$$\begin{array}{ccc} \text{the number of cans} & : & \text{the number of cans} & : & \text{the number of cans} & = & 5:3:2 \\ \text{of cola} & & \text{of lemonade} & & \text{of orange} & & \end{array}$$

$\frac{1}{2}$  of the cans of lemonade and  $\frac{1}{12}$  of the cans of orange are removed from the shelf.

Work out the number of cans of cola as a percentage of the total number of cans of drink remaining on the shelf.

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**(Total for Question 18 is 5 marks)**

## June 2020 Paper 2

**20** Pens and pencils are sold in a shop.

12 pencils cost £1.80

The ratio of the cost of a pen to the cost of a pencil is 7:3

Work out the cost of 5 pens.

£.....

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**(Total for Question 20 is 4 marks)**

## June 2023 Paper 2

- 22 There are 48 counters in a bag.  
There are only red counters and blue counters in the bag.

$$\text{number of red counters} : \text{number of blue counters} = 1 : 2$$

Helen has to work out how many red counters are in the bag.

She says,

“There are 24 red counters in the bag because 1 is half of 2 and 24 is half of 48”

Is Helen correct?

You must give a reason for your answer.

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**(Total for Question 22 is 1 mark)**

## November 2022 Paper 3

22 Rob has been asked to divide 120 in the ratio 3:5

Here is his working.

$$120 \div 3 = 40 \qquad 120 \div 5 = 24$$

Rob's working is not correct.

Describe what Rob has done wrong.

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**(Total for Question 22 is 1 mark)**

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## November 2021 Paper 3

22 Natalie makes potato cakes in a restaurant.

She mixes potato, cheese and onion so that

$$\text{weight of potato} : \text{weight of cheese} : \text{weight of onion} = 9 : 2 : 1$$

Natalie needs to make 6000 g of potato cakes.

Cheese costs £2.25 for 175 g.

Work out the cost of the cheese needed to make 6000 g of potato cakes.

£.....

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**(Total for Question 22 is 4 marks)**

## June 2020 Paper 2

**23** Carlo puts tins into small boxes and into large boxes.

He puts 6 tins into each small box.

He puts 20 tins into each large box.

Carlo puts a total of 3000 tins into the boxes so that

number of tins in small boxes : number of tins in large boxes = 2:3

Carlo says that less than 30% of the boxes filled with tins are large boxes.

Is Carlo correct?

You must show all your working.

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**(Total for Question 23 is 5 marks)**

## November 2021 Paper 1

24 Rosie, Matilda and Ibrahim collect stickers.

$$\begin{array}{l} \text{number of stickers} \\ \text{Rosie has} \end{array} : \begin{array}{l} \text{number of stickers} \\ \text{Matilda has} \end{array} : \begin{array}{l} \text{number of stickers} \\ \text{Ibrahim has} \end{array} = 4:7:15$$

Ibrahim has 24 more stickers than Matilda.

Ibrahim has more stickers than Rosie.

How many more?

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**(Total for Question 24 is 3 marks)**

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## June 2023 Paper 2

- 25 Last year a family recycled 800 kg of household waste.  
57% of this waste was paper and glass.

weight of paper recycled : weight of glass recycled = 12 : 7

Calculate the weight of glass the family recycled.

..... kg

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**(Total for Question 25 is 3 marks)**

## June 2022 Paper 1

25 A delivery company has a total of 160 cars and vans.

the number of cars : the number of vans = 3 : 7

Each car and each van uses electricity or diesel or petrol.

$\frac{1}{8}$  of the cars use electricity.

25% of the cars use diesel.

The rest of the cars use petrol.

Work out the number of cars that use petrol.

You must show all your working.

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**(Total for Question 25 is 5 marks)**

## November 2023 Paper 2

- 26** Chris, Debbie and Errol share some money in the ratio 3:4:2  
Debbie gets £120

Chris then gives some of his share to Debbie and some of his share to Errol.  
The money that Chris, Debbie and Errol each have is now in the ratio 2:5:3

How much money did Chris give to Errol?

£.....

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**(Total for Question 26 is 4 marks)**