



Ratio and Proportion (F)

Intervention Booklet

Simplifying Ratio

Things to remember:

- It's like simplifying fractions – divide both sides of the ratio by their highest common factor.
- If you can't work out the HCF, try dividing in several steps instead.

Questions:

1. Jim has only 5p coins and 10p coins.
The ratio of the number of 5p coins to the number of 10p coins is 2 : 3 Work out the ratio of the total value of the 5p coins : the total value of the 10p coins.
Give your answer in its simplest form.

2. There are only red counters and blue counters in a bag. (4 marks)
The ratio of the number of red counters to the number of blue counters is 4 : 6
(a) Write this ratio in its simplest form.

.....
A counter is to be taken at random from the bag.

- (b) Write down the probability that the counter will be blue.

(1)

.....
(2)

(Total for question = 3 marks)

3. There are 20 red counters and 15 blue counters in a bag.
 (a) Write down the ratio of the number of red counters to the number of blue counters.
 Give your ratio in its simplest form.

.....
 (2)

There are only red counters and blue counters in the bag.
 x red counters are taken from the bag.
 y blue counters are taken from the bag.

- (b) Write down an expression, in terms of x and y, for the total number of counters now in the bag.

.....
 (2)
(Total for question = 4 marks)

Dividing into a Ratio

Things to remember:

- Start by dividing the total quantity by the total number of parts, then multiply by each side of the ratio.
- Check your answer adds up to the original total quantity.

Questions:

1. A piece of wood is of length 45 cm. The length is divided in the ratio 7 : 2
 Work out the length of each part.

..... cm : cm
(3 marks)

2. Alex and Ben were given a total of £240 They shared the money in the ratio 5 : 7
 Work out how much money Ben received.

£
(3 marks)

3. Ken and Susan share £20 in the ratio 1 : 3 Work out how much money each person gets.

Ken £
Susan £
(3 marks)

4. Melissa is 13 years old. Becky is 12 years old. Daniel is 10 years old.
Melissa, Becky and Daniel share £28 in the ratio of their ages. Becky gives a third of her share to her mother.
How much should Becky now have?

£
(Total 4 marks)

5. The ratio of girls to boys in a school is 2 : 3
(a) What fraction of these students are boys?

.....
(2)

In Year 8 the ratio of girls to boys is 1 : 3 There are 300 students in Year 8.
(b) Work out the number of girls in Year 8.

.....
(3)

(5 marks)

6. Ann and Bob shared £240 in the ratio 3 : 5 Ann gave a half of her share to Colin. Bob gave a tenth of his share to Colin.
What fraction of the £240 did Colin receive?

.....
(5 marks)

7. Peter won £75 as a prize.
He gave $\frac{4}{5}$ of the prize money as a present to Roger and Bethan. Roger and Bethan shared the present in the ratio 2:3
Work out how much they each got.

.....
(4 marks)

8. Rosa prepares the ingredients for pizzas.
She uses cheese, topping and dough in the ratio 2 : 3 : 5 Rose uses 70 grams of dough.
Work out the number of grams of cheese and the number of grams of topping Rosa uses.

Cheese g
Topping g
(Total 3 marks)

9. 5 schools sent some students to a conference.
One of the schools sent both boys and girls. This school sent 16 boys.
The ratio of the number of boys it sent to the number of girls it sent was 1 : 2
The other 4 schools sent only girls.
Each of the 5 schools sent the same number of students.
Work out the total number of students sent to the conference by these 5 schools.

.....
(4 marks)

10. Pat and Julie share some money in the ratio 2 : 5 Julie gets £45 more than Pat.
How much money did Pat get?

£.....
(4 marks)

11. Talil is going to make some concrete mix.
He needs to mix cement, sand and gravel in the ratio 1 : 3 : 5 by weight. Talil wants to make 180 kg of concrete mix.
Talil has
 15 kg of cement
 85 kg of sand
 100 kg of gravel
Does Talil have enough cement, sand and gravel to make the concrete mix?

(4 marks)

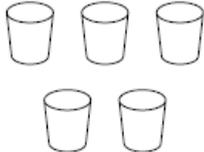
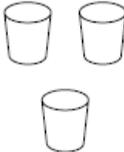
Best Buys

Things to remember:

- Work out the price per unit of each item.
- Select the cheapest one!

Questions:

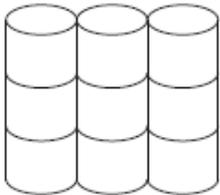
1. Two shops, Food Mart and Jim's Store, both sell Kreemy Yoghurts.

Food Mart	Jim's Store
Kreemy Yoghurts	Kreemy Yoghurts
	
5 for £1.80	3 for £1.05

At which shop are Kreemy Yoghurts the better value for money? You must show all your working.

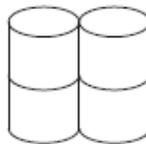
(3 marks)

2. A pack of 9 toilet rolls costs £4.23



Pack of 9
toilet rolls
£4.23

A pack of 4 toilet rolls costs £1.96



Pack of 4
toilet rolls
£1.96

Which pack gives the better value for money? You must show all your working.

(3 marks)

3. T-shirts normally cost £12 each.
Two shops have a special offer on these T-shirts.

Special Offer

1/3 off normal price

Special Offer

Pay for two T-shirts and get one free
Pay for five T-shirts and get three free

Stephen wants to buy 30 T-shirts.

Work out at which shop, Stephen will get the better deal. You must show clearly how you got your answer.

(4 marks)

4. Radox Handwash cost is on offer at Boots and Superdrug.
Boots 500ml bottles on offer at 3 for 2
Superdrug 300ml bottles on offer at buy one get one free
Where is the handwash better value, at Boots or Superdrug? You must show your working.

(4 marks)

5. Diet Coke is on offer at Morrisons and Sainsburys.
Morrisons: 2 litre bottles on offer 3 for £4.50
Sainsburys: 24 cans x 330ml on offer for £8.85

(4 marks)

6. Thomas wants to buy an iPod.
The iPod that Thomas wants is sold in two different shops.

<p>Pod Direct</p> <p>15% off usual price of £120</p>	<p>Music City</p> <p>£84 plus VAT at 17½%</p>
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Work out the difference in the cost of the iPod at the two shops..

(5 marks)

7. Railtickets and Cheaptrains are two websites selling train tickets.
Each of the websites adds a credit card charge and a booking fee to the ticket price.

Railtickets

Credit card charge: 2.25% of ticket price
Booking fee: 80 pence

Cheaptrains

Credit card charge: 1.5% of ticket price
Booking fee: £1.90

Nadia wants to buy a train ticket.

The ticket price is £60 on each website. Nadia will pay by credit card.

Will it be cheaper for Nadia to buy the train ticket from Railtickets or from Cheaptrains?

(5 marks)

Recipes

Things to remember:

- Work out the scale factor first.
- Multiply each quantity of ingredients by the scale factor.

Questions:

1. Here is a list of ingredients for making 10 Flapjacks.

Ingredients for 10 Flapjacks
80 g rolled oats
60 g butter
30 ml golden syrup
36 g light brown sugar

Work out the amount of each ingredient needed to make 15 Flapjacks.

..... g rolled oats
..... g butter
..... ml golden syrup
..... g light brown sugar
(Total 3 marks)

2. Fred has a recipe for 30 biscuits.
Here is a list of ingredients for 30 biscuits.

Self-raising flour:	230g
Butter:	150g
Caster sugar:	100g
Eggs:	2

Fred wants to make 45 biscuits.

- (a) Complete his new list of ingredients for 45 biscuits.

Self-raising flour:
Butter:
Caster sugar:
Eggs:

(3)

Gill has only 1 kilogram of self-raising flour. She has plenty of the other ingredients.

(b) Work out the maximum number of biscuits that Gill could bake.

.....
(3)
(6 marks)

3. Here is a list of ingredients for making 12 small cakes.

Ingredients for 12 small cakes
180 g margarine
180 g sugar
200 g plain flour
1 teaspoon baking powder
2 eggs

Joe is going to make 24 of the small cakes.

(a) Work out how much margarine he needs.

..... g
(2)

Sharon is going to make 18 of the small cakes.

(b) Work out how much flour she needs.

..... g
(2)

(Total for Question = 4 marks)

4. This is a list of ingredients for making a pear & almond crumble for 4 people.

Ingredients for 4 people:

80 g plain flour

60 g ground almonds

90 g soft brown sugar

60 g butter

4 ripe pears

Jessica wants to make a pear & almond crumble for 10 people.

Here is a list of the amount of each ingredient Jessica has in her cupboard.

250 g plain flour

100 g ground almonds

200g soft brown sugar

150 g butter

8 ripe pears

Work out which ingredients Jessica needs to buy more of. You must show all of your working.

(Total for Question = 4 marks)

5. 225 grams of flour are needed to make 9 cakes.

Marian wants to make 20 of these cakes. She has 475 grams of flour.

Does Marian have enough flour to make 20 cakes? You must show all your working.

(Total for Question = 3 marks)

Exchange Rates

Things to remember:

- Foreign currency = British currency x exchange rate.

Questions:

1. Jamie goes on holiday to Florida.
The exchange rate is £1 = 1.70 dollars. He changes £900 into dollars.
(a) How many dollars should he get?

..... dollars
(2)

After his holiday Jamie changes 160 dollars back into pounds. The exchange rate is still £1 = 1.70 dollars.

- (b) How much money should he get?
Give your answer to the nearest penny.

£
(2)
(4 marks)

2. Tania went to Italy.
She changed £325 into euros (€). The exchange rate was £1 = €1.68
(a) Change £325 into euros (€).

€
(2)

When she came home she changed €117 into pounds.

The new exchange rate was £1 = €1.50

- (b) Change €117 into pounds.

£
(2)
(4 marks)

3. No Question

4. A student bought a pair of sunglasses in the USA. He paid \$35.50
In England, an identical pair of sunglasses costs £26.99 The exchange rate is £1 = \$1.42
In which country were the sunglasses cheaper, and by how much? Show all your working.

(4 marks)

5. Hugh went on holiday to Italy.
While on holiday, he went shopping. He bought a belt and a hat.
The belt cost 25 euros. The hat cost 14 euros.
The exchange rate was £1 = 1.56 euros.
Work out the total cost of the belt and the hat. Give the total cost in pounds.

£

(4 marks)

6. Linda is going on holiday to the Czech Republic. She needs to change some money into koruna.
She can only change her money into 100 koruna notes. Linda only wants to change up to £200 into koruna.
She wants as many 100 koruna notes as possible. The exchange rate is £1 = 25.82 koruna.
How many 100 koruna notes should she get?

.....
(6 marks)

7. Tim is travelling home from holiday by plane. He buys some food and drink on the plane.

Price List	
Cheese Roll	£3.50
Crisps	£1.20
Chocolate bar	£1.30
Coffee	£2.50
Tea	£2.00
Orange Juice	£2.20
Exchange rate £1 = 1.25 euros	

Tim buys two cheese rolls, a coffee and an orange juice. He pays part of the cost with a 10 euro note.

He pays the rest of the cost in pounds (£). How much does Tim pay in pounds?

£
(4 marks)

8. Esther went to France.
She changed £300 into Euros (€). The exchange rate was £1 = €1.25
(a) How many Euros did she get?

€
(2)

Esther went shopping in France. She bought
2 necklaces for €2.60 each
1 hat for €6.40 1 bag for €9.80
The exchange rate was £1 = €1.25
(b) Work out her total bill in pounds (£).

£
(4)
(6 marks)

9. Rosie and Jim are going on holiday to the USA.
Jim changes £350 into dollars (\$).
The exchange rate is £1 = \$1.34
(a) Work out how many dollars (\$) Jim gets.

\$

(2)

In the USA Rosie sees some jeans costing \$67 In London the same make of jeans costs £47.50 The exchange rate is still £1 = \$1.34

- (b) Work out the difference between the cost of the jeans in the USA and in London.
Give your answer in pounds (£).

£

(3)

(5 marks)