

# Ratio Toolkit

## Question Paper

Course	Edexcel IGCSE Maths
Section	1. Numbers & the Number System
Topic	Ratio Toolkit
Difficulty	Medium

**Time allowed:** 80  
**Score:** /63  
**Percentage:** /100

### Question 1a

Here are the ingredients needed to make 12 shortcakes.

<p style="text-align: center;"><b>Shortcakes</b></p> <p style="text-align: center;">Makes <b>12</b> shortcakes</p> <p style="text-align: center;">50 g of sugar 200 g of butter 200 g of flour 10 ml of milk</p>
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Liz makes some shortcakes.

She uses 25 ml of milk.

How many shortcakes does Liz make?

[2 marks]

### Question 1b

Robert has

500 g of sugar

1000 g of butter

1000 g of flour

500 ml of milk

Work out the greatest number of shortcakes Robert can make.

[2 marks]

## Question 2

Here is a list of ingredients for making 18 mince pies.

Ingredients for mince pies
225 g of butter
350 g of flour
100 g of sugar
280 g of mincemeat
1 egg

Elaine wants to make 45 mince pies.

Elaine has

1 kg of butter

1 kg of flour

500 g of sugar

600 g of mincemeat

6 eggs

Does Elaine have enough of each ingredient to make 45 mince pies?

You must show clearly how you got your answer.

[4 marks]

### Question 3

Here are the ingredients needed to make **8** shortbread biscuits.

Shortbread biscuits makes <b>8</b> biscuits  120 g butter 60 g caster sugar 180 g flour
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Tariq is going to make some shortbread biscuits.

He has the following ingredients

330g butter 200g caster sugar 450g flour

Work out the greatest number of shortbread biscuits that Tariq can make with his ingredients.

You must show all your working.

**[3 marks]**

### Question 4

160 cm of gold wire has a weight of 17.8 grams.

Work out the weight of 210 cm of the gold wire.

**[3 marks]**

### Question 5

There are 1200 students at a school.

Kate is helping to organise a party.

She is going to order pizza.

Kate takes a sample of 60 of the students at the school.

She asks each student to tell her **one** type of pizza they want.

The table shows information about her results.

Pizza	Number of students
ham	20
salami	15
vegetarian	8
margarita	17

Work out how much ham pizza Kate should order.

Write down any assumption you make **and** explain how this could affect your answer.

[3 marks]

### Question 6

Rob is learning about the planets.

Rob makes a model of the Sun.

He also makes a model of the planet Jupiter.

Rob is going to hang the two models in the school hall.

Rob wants a distance of 16 m between the two models.

The real distance between the planet Jupiter and the Sun is  $8 \times 10^8$  km

Work out the scale Rob should use.

Give your answer in the form  $1 : n$

[3 marks]

### **Question 7**

The ratio of the number of boys to the number of girls in a school is 4:5

There are 95 girls in the school.

Work out the total number of students in the school.

**[3 marks]**

### **Question 8**

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]**

**Question 9a**

Babajan makes breakfast cereal.

She mixes nuts, raisins and oats in the ratio 3 : 2 : 5 by weight.

On Monday, Babajan uses 60 grams of nuts.

Work out the weight of raisins and the weight of oats she uses to make the breakfast cereal.

**[3 marks]**

**Question 9b**

On Tuesday, Babajan makes 300 grams of the breakfast cereal.

500 grams of nuts cost £8

Work out the cost of the nuts used to make 300 grams of the breakfast cereal.

**[3 marks]**

### Question 10

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]

### Question 11a

Emma has a digital photo.

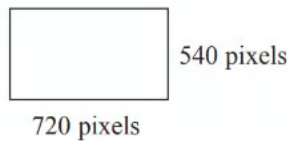


Diagram **NOT**  
accurately drawn

The photo has a width of 720 pixels.

The photo has a height of 540 pixels.

Write down the ratio of the width of the photo to the height of the photo.

Give your ratio in its simplest form.

[2 marks]



### Question 11b

Emma wants the ratio of the width of the photo to the height of the photo to be 3 : 2

She reduces the number of pixels in the height of the photo.

The width of the photo is still 720 pixels.

The ratio of the width of the photo to the new height of the photo is 3 : 2

Work out the new height of the photo.

[2 marks]

### Question 12a

Deon needs 50g of sugar to make 15 biscuits.

She also needs

three times as much flour as sugar

two times as much butter as sugar

Deon is going to make 60 biscuits.

Work out the amount of flour she needs.

[3 marks]

### Question 12b

Deon has to buy all the butter she needs to make 60 biscuits.  
She buys the butter in 250 g packs.

How many packs of butter does Deon need to buy?

[2 marks]

### Question 13

A shop sells packs of black pens, packs of red pens and packs of green pens.

There are

- 2 pens in each pack of black pens
- 5 pens in each pack of red pens
- 6 pens in each pack of green pens

On Monday,

$$\begin{array}{l} \text{number of packs} \\ \text{of black pens sold} \end{array} : \begin{array}{l} \text{number of packs} \\ \text{of red pens sold} \end{array} : \begin{array}{l} \text{number of packs} \\ \text{of green pens sold} \end{array} = 7:3:4$$

A total of 212 pens were sold.

Work out the number of green pens sold.

[4 marks]

**Question 14**

Brendon, Asha and Julie share some money in the ratios 3 : 2 : 6  
The **total** amount of money that Asha and Julie receive is \$36

Work out the amount of money that Brendon receives.

\$.....

**[3 marks]**

**Question 15**

A plane has a length of 73 metres.

A scale model is made of the plane.

The scale of the model is 1 : 200

Work out the length of the scale model.

Give your answer in centimetres.

**[3 marks]**

**Question 16**

A football team played 55 games.

Each game was won, drawn or lost.

number of games won : number of games drawn : number of games lost = 6 : 3 : 2

Work out how many more games the team won than the team lost.

[3 marks]

**Question 17**

Two bags each contain only red counters and yellow counters.

In Bag A, the ratio of red counters to yellow counters is 1 : 4.

In Bag B,  $\frac{1}{4}$  of the counters are red.

i)

Sharon says

The proportion of the counters that are red is the same in both bags.

Explain why Sharon is not correct.

ii)

The number of counters in the two bags is the same.

Complete the table below to show how many counters of each colour could be in the bags.

	Red counters	Yellow counters
Bag A		
Bag B		

[3]

[4 marks]

