# Foundation Check In - 5.01 Calculations with ratio

1. A school canteen has 45 chairs and 18 tables. Write the ratio of tables to chairs in its simplest form.
2. Share 1.5 litres of juice in the ratio 3 : 5 : 2.

Give the quantities in millilitres.

1. Some flour is shared in the ratio 4 : 3. The smaller share weighs 120 g.

Find the weight of the flour that was shared out.

1. *Seaweed green* is made by mixing yellow paint, blue paint and orange paint in the ratio 3 : 7 : 1. What fraction of the mixture is blue paint?
2. Write 5 g : 200 mg in the ratio *n* : 1.
3. A piece of wood is cut into three pieces, *A*, *B* and *C*. *A* is  of the total length. The lengths of *B* and *C* are in the ratio 1 : 2. Explain why *B* is the same length as *A*.
4. Lily and Rema win a sum of money which they agree to share in the ratio 1 : 4. Lily says, “I will have a quarter of the winnings”. Explain why Lily is wrong and correct her answer.
5. A large pack of gravy granules weighs 700 g and costs £2.80. A small pack of gravy granules weighs 250 g and costs £1.05. Show that the larger pack gives better value for money.
6. Jan has this recipe for macaroni cheese that serves 4 people.

|  |  |
| --- | --- |
| 400 g | macaroni pasta |
| 300 ml | evaporated milk |
| 150 g | mature cheddar cheese |
|  2 | shallots |

If Jan has 2.5 kg of macaroni pasta, 2 L of evaporated milk, 1 kg of mature cheddar cheese and 15 shallots and she makes as much macaroni cheese as possible, how many people will it serve?

1. During a one hour training session, Darren walks, jogs and runs in the ratio 1 : 5 : 2. The length of his stride is 0.8 m when walking, 1.1 m when jogging and 1.4 m when running. His pedometer records 5600 strides in a session. Work out his average speed in km/h.

**Extension**

The graph below shows the relationship between *f*, the amount of flour in grams,

and *b*, the amount of butter in grams, used to make pastry.



Height (= 400 g)

Base (= 200 g)

*f*

*b*

The **gradient** of this line is 2 because, for any right-angled triangle joining two

points on the line as shown, the height is twice the base.

The **equation** of the line is .

1. Write the ratio *f* : *b* in its simplest form.

 Find how much butter is used when 1.2 kg of flour is used.

1. Draw a graph for when the ratio is *f* : *b*  3 : 1.

 Write down the equation of the graph.

1. Draw a graph for when .

 Write the ratio *f* : *b* in its simplest form.

 Find how much flour is used when 550 g of butter is used.

## Answers

1. 2 : 5
2. 450 ml, 750 ml, 300 ml
3. 280 g
4. 
5. 25 : 1
6. *A* is of the whole so *B* + *C* is  of the whole. These are shared in the ratio 1 : 2 or  so *B* is the same fraction of the whole as *A*.
7. 1 : 4 means there are 5 parts, so Lily will get  of the total.
8. Cost per 100 g of the larger pack , whilst cost per 100 g of the smaller pack . The larger pack is better value than the smaller pack oe.
9. 25 people
10. 6.37 km/h

**Extension**

* + 1. *f* : *b*  2 : 1

0.6 kg or 600 g of butter used







 *f* : *b*  1 : 2

 275 g of flour used

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| **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |  | **Assessment Objective** | **Qu.** | **Topic** | **R** | **A** | **G** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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| AO1 | 2 | Split a quantity into three parts given the ratio |  |  |  |  | AO1 | 2 | Split a quantity into three parts given the ratio |  |  |  |
| AO1 | 3 | Calculate one quantity from another, given the ratio of the two quantities |  |  |  |  | AO1 | 3 | Calculate one quantity from another, given the ratio of the two quantities |  |  |  |
| AO1 | 4 | Interpret a ratio as a fraction of a whole |  |  |  |  | AO1 | 4 | Interpret a ratio as a fraction of a whole |  |  |  |
| AO1 | 5 | Find a ratio of mixed unit quantities in the form *n* : 1 |  |  |  |  | AO1 | 5 | Find a ratio of mixed unit quantities in the form *n* : 1 |  |  |  |
| AO2 | 6 | Interpret a ratio as a fraction |  |  |  |  | AO2 | 6 | Interpret a ratio as a fraction |  |  |  |
| AO2 | 7 | Interpret a ratio as a fraction of a whole |  |  |  |  | AO2 | 7 | Interpret a ratio as a fraction of a whole |  |  |  |
| AO2 | 8 | Use ratios to determine value for money |  |  |  |  | AO2 | 8 | Use ratios to determine value for money |  |  |  |
| AO3 | 9 | Solve a proportion problem |  |  |  |  | AO3 | 9 | Solve a proportion problem |  |  |  |
| AO3 | 10 | Solve a problem involving a quantity split into three parts |  |  |  |  | AO3 | 10 | Solve a problem involving a quantity split into three parts |  |  |  |
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