

Knowledge Organiser DIVIDING AN AMOUNT INTO RATIOS



Key Concepts

An amount can be divided into a given ratio.

Red : Green 1 : 3

For every 1 red there are 3 greens.

A ratio can be converted into fractions.

Red : Green 1 : 3

 $\frac{1}{4}$ are red and $\frac{3}{4}$ are green.

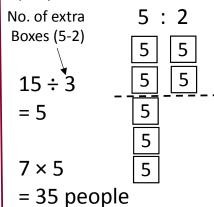
A woman has £400. She is going to split her money between her two children in the ratio 2:3. How much does each child receive?

No. of boxes
$$(2+3)$$
 $(2+3)$

Child 1 receives £160 and Child 2 receives £240.

There are boys and girls at a party in the ratio 5:2.

There are 15 more boys than girls. Calculate the number of people at the party.



Examples

Key Words

Ratio Divide Parts 2) Share £25 in the ratio 7:3

chocolate?

3) Katy and Becky share some money in the ratio 2:1. Katy receives £10 more than Becky. How much do they each receive?

Ann made some cakes. She made vanilla cakes and chocolate cakes in the ratio 2:9. What fraction of the cakes were

4) Claire and John share some money in the ratio 3:2. Claire receives £18. How much does John receive?

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Knowledge Organiser RATIO AND DIRECT PROPORTION



Key Concepts

To calculate the **value** for a single item we can use the **unitary method**.

When working with best value in monetary terms we use:

$$Price \ per \ unit = \frac{price}{quantity}$$

In recipe terms we use:

Weight per unit =
$$\frac{weight}{quantity}$$

If 20 apples weigh 600g. How much would 28 apples weigh?

$$600 \div 20 = 30g$$
 weight of 1 apple $28 \times 30 = 840g$

Box A has 8 fish fingers costing £1.40. Box B has 20 fish fingers costing £ 3.40. Which box is the better value?



$$A = \frac{£1.40}{8} \qquad B = \frac{£3.40}{20}$$
$$= £0.175 \qquad = £0.17$$

Therefore Box B is better value as each fish finger costs less.

Examples

The recipe shows the ingredients needed to make 10 Flapjacks.

How much of each will be needed to make 25 flapjacks?

Ingredients for 10 Flapjacks 80 g rolled oats

60 g butter

30 ml golden syrup 36 g light brown sugar Method 1: Unitary $80 \div 10 = 8$

 $30 \div 10 = 3$ $3 \times 25 = 75g$ $8 \times 25 = 200g$

 $36 \div 10 = 3.6$ $60 \div 10 = 6$ $3.6 \times 25 = 90g$ $6 \times 25 = 150g$

Method 2: 5 flapjacks

 $30 \div 2 = 15$ $80 \div 2 = 40$ $15 \times 5 = 75g$ $40 \times 5 = 200g$

 $36 \div 2 = 18$ $60 \div 2 = 30$ $18 \times 5 = 90g$ $30 \times 5 = 150g$

Key Words

Unitary Best Value **Proportion** Quantity

Ingredients to make 16 gingerbread men

> 180 g flour 40 g ginger 110 g butter 30 g sugar

1) How much will we need to make 24 gingerbread men?

- 2) Packet A has 10 toilet rolls costing £3.50. Packet B has 12 toilet rolls costing £3.60. Which is better value for money?
- 3) If 15 oranges weigh 300g. What will 25 oranges weigh?

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Knowledge Organiser DIRECT AND INVERSE PROPORTION



Key Concepts

Variables are **directly proportional** when the **ratio is constant** between the quantities.

Variables are inversely proportional when one quantity increases in proportion to the other decreasing.

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Examples

Direct proportion:

Value of A	32	Р	56	20	72
Value of B	20	30	35	R	45

Ratio constant: $20 \div 32 = \frac{5}{8}$

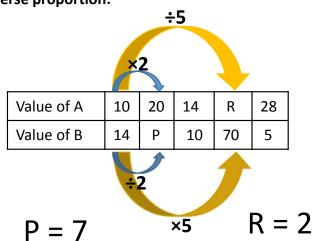
From A to B we will multiply by $\frac{5}{8}$. From B to A we will divide by $\frac{5}{8}$.

$$P = 30 \div \frac{5}{8} = 48$$

 $\times \frac{5}{8} = 12.5$

R= 20

Inverse proportion:



Key Words

Direct Inverse Proportion Divide Multiply Constant Complete each table:

1) Direct proportion

Value of A	5	Р	22
Value of B	9	28.8	Q

2) Inverse proportion

Value of A	4	Р	18
Value of B	9	3	Q

ANSWERS 1) P = 16, Q = 39.6 2) P = 12, Q = 2