

RATIO

(keep the FRACTIONS sheet handy)

To simplify a ratio: cancel left / right as you would cancel numerator / denominator in a fraction

Example: 9 : 15 becomes 3 : 5 after dividing left and right by 3

Beware of units! 50g : 3kg needs to be written 50g : 3000g

Giving the answer 1g : 60g

What about fractions?

Convert to vulgar and **multiply** both sides by a suitable number

Example: $2\frac{1}{2} : 5\frac{2}{3}$ converts to $\frac{5}{2} : \frac{17}{3}$ and then multiplying both sides by the magic **6** gives us $6\frac{5}{2} : 6\frac{17}{3}$, and the answer 15 : 34

What about decimals?

Just move the decimal point enough to make both sides into whole numbers

Example: 36.5 : 0.74 becomes 3650 : 74 (you have to move the point twice to make 74) this can now be simplified as usual.

Converting to the form 1 : n or the form n : 1

ask yourself "what did I do to

the left"? Then do the same to the right.

Example: 2 : 5 to get the left to be 1 we need to divide by 2
So do the same to the right

Answer $1 : \frac{2}{5}$ to get the right to be 1 we need to divide by 5

So do the same to the left

Answer $\frac{2}{5} : 1$

EASY PEASY!

Sharing a quantity in a given ratio

To share £336 in the ratio 15:9 (That is between you and your little sister)

Add the two parts: $15 + 9 = 24$ parts in total

Now divide the £336 by 24 to get down to one part $336 \div 24 = 14$

Fifteen parts will be $14 \times 15 = 210$ and **nine** parts will be $14 \times 9 = 126$

Answer = £210 : £126 (the total is still £336)

No discount given for bulk purchase

5 Cans of drink cost 150 pence The cost is said to be **directly proportional** to the number of cans if their ratio stays the same as the quantities increase or decrease.

10 cans would cost 300 pence (double the cans, double the cost)

To find the cost of 18 cans **get down to one** again

$\div 5$ $\times 18$	cans	cost
	5	150
	1	$150 \div 5$
	18	$150 \div 5 \times 18$

Then get up to 18. Whatever we do to the left - we do to the right.

Answer = 540 pence

More pussies less food

A little old lady buys enough food to last her 6 cats for 2 days

How many days will the same amount of food last 4 cats ?

$\div 6$ $\times 4$	cats	days
	6	2
	1	One cat - food lasts longer 2×6
	4	4 cats - food goes quicker $2 \times 6 \div 4$

This is known as **inverse proportion** We do the **opposite** operation
On this side

The answer is 3 days