Ratio & Dividing with Ratios

		Example
Ratio	Used to compare the size of / difference between quantities	The ratio of blue cars to green is 1:2 *this means* there are two green cars for every blue car A loaf of bread costs £1.15. The ratio for this is 1:1.15
	Ratios can have more than two numbers	The ratio of ingredients (butter, sugar, flour, eggs) in a 6oz cake mix is 6:6:6:3 *this means* 6oz butter, 6oz sugar, 6oz flour, 3 eggs This ratio can be simplified by dividing the ratios by their common factor of 3 and becomes: 2:2:2:1 ***this means*** there are: 2oz of butter, 2oz flour, 2oz sugar to 1 egg ***OR*** *there are* : 2 parts flour, 2 parts butter, 2 parts sugar and 1 part egg = **7 parts**

Ratio

The Rules

1. Convert the measurements to the same units
2. Find the highest common factor (number that divides into both exactly)
3. Simplify the ratio by dividing the parts by the same number (highest common factor)

   Carry on simplifying the ratio until it is in its simplest form
   (cannot be simplified any further)

Example

Express the ratio **8 cm : 2 m** in its simplest form

Rule

1.	Convert the measurements to the same units	**Change 2 m to 200 cm** **8 : 200**
2.	Find the highest common factor	**8**
3.	Simplify the ratio	**8 ÷ 8 = 1** **200 ÷ 8 = 25**
The ratio 8 cm ; 2 m expressed in its simplest form is		**1 : 25**

NB: If this was referring to a scale drawing it could mean that each 1 cm on the plan was equivalent to 2 m in real life

Dividing with Ratios

The Rules

1-3. Simplify the ratio by dividing by the highest common factor

4. Calculate the total number of parts (add the numbers in the ratio together)

5. Find the value of 1 part (divide the amount to be split by the total number of parts)

6. Multiply each number in the ratio by the value of 1 part

Example when dividing

To raise money to decorate their flat, Michelle, Saara and Eli all sold clothes on ebay.

Michelle sold	6 items
Saara sold	9 items
Eli sold	3 items

Each customer paid what they bid and at the end of the bidding period they had earned £120. Calculat e how much money each of them raised.

Rule

1. The ratio: 6:9:3
3 is the highest common factor and the ratio can be **simplified to: 2:3:1**

2. Total number of parts are 2+3+1 = 6

3. The amount is £120
The value of 1 part is £120÷6 = £20

4. 2 x £20 = £40
3 x £20 = £60
1 x £20 = £20

- **Michelle** sold 6 items and raised **£40**
- **Saara** sold 9 items and raised **£60**
- **Eli** sold 3 items and raised **£20**