

## Direct Proportion and the unitary method

### Direct Proportion

Quantities are in direct proportion when the pair of values increase or decrease but the ratio remains the same

A loaf of bread costs £1.15. The ratio is 1:1.15

If we buy 10 loaves of bread the cost changes but the ratio remains the same.

<i>Loaves</i>	<i>Cost £</i>	<i>Ratio of number of loaves to cost</i>	
1	1.15	$\frac{1.15}{1}$	1:1.15
2	2.30	$\frac{2.30}{2}$	1:1.15
3	3.45	$\frac{3.45}{3}$	1:1.15
5	5.75	$\frac{5.75}{5}$	1:1.15
10	11.50	$\frac{11.50}{10}$	1:1.15

You can calculate a missing amount when two quantities are in direct proportion with one another by using the '**unitary method**'.

### The Rules

1. Find the unit value (divide the amount by the number of units)
2. Multiply the unit value by the number of units you're finding a value for.

### Example

Florence buys 2L petrol. It costs her £2.10. How much would 6L cost?

For the calculation you need to identify:

Amount	£6.60
Number of units	2 (2L)
Number of units finding a value for	6 (6L)

### **Rule**

- 1. Find the unit value**  
The amount  $\div$  the number of units  
 $\text{£}2.10 \div 2\text{L} = \text{£}1.05$   
The unit value is  $\text{£}1.05$
- 2. Multiply the unit value by the number of units**  
Unit value  $\times$  number of units finding a value for  
 $\text{£}1.05 \times 6\text{L} = \text{£}6.30$

6L of petrol would cost  $\text{£}6.30$