

**Key Vocabulary**

Ratio	Comparative value of two or more amounts
Proportion	A part to a whole comparison
Multiplier	A number doing the multiplying
Speed	How fast something is moving- measured as distance travelled in a given time
Unitary method	Method of working out proportion by first working out 1 unit.
Unit of measure	Standard amount or quantity
Compound units	Compound Units are units that require two different types of measurement: speed is a compound unit as it is defined with both distance and time.

**Key facts / Diagrams**

**Dividing a quantity into a given ratio**

The simplest way to divide a quantity is to use the "PLUS, DIVIDE, TIMES" method

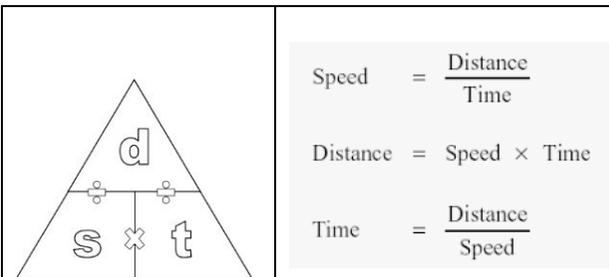
Example:

Allan and Daniel divide £35 in the ratio of 4:3. How much money does each get?

$$\begin{array}{l}
 + \quad 4 + 3 = 7 \\
 \div \quad \pounds 35 \div 7 = \pounds 5 \\
 \times \quad \text{Allan} \quad 4 \times \pounds 5 = \pounds 20 \\
 \quad \quad \quad \text{Daniel} \quad 3 \times \pounds 5 = \pounds 15
 \end{array}$$

Check  $\pounds 20 + \pounds 15 = \pounds 35 \checkmark$

Answer: Allan gets £20 and Daniel gets £15.



**Common misconceptions**

- Many pupils will want to identify an additive relationship between two quantities that are in proportion and apply this to other quantities in order to find missing amounts
- Some pupils may think that a multiplier always has to be greater than 1
- When converting between times and units, some pupils may base their working on 100 minutes = 1 hour

**Worked examples**

5 : 3 : 11      Ratio

$\frac{5}{19} : \frac{3}{19} : \frac{11}{19}$       Fraction

Start by finding out the cost of 1m<sup>2</sup>, then scale up to find the cost of 17m<sup>2</sup>.

$$\div 5 \left( \begin{array}{l} 5\text{m}^2 \text{ cost } \pounds 27.50 \\ 1\text{m}^2 \text{ cost } \pounds 5.50 \end{array} \right) \div 5$$

$$\times 17 \left( \begin{array}{l} 1\text{m}^2 \text{ cost } \pounds 5.50 \\ 17\text{m}^2 \text{ cost } \pounds 93.50 \end{array} \right) \times 17$$

The company is correct in that they offer a better deal when buying the larger quantity, as there is a saving of 85 pence.