



## KEY VOCAB

**Ratio** shows how much of one quantity there is of something compared to another. They are usually written in the form a:b. The order in which a ratio is stated is important.

**Equivalent** ratios have the same value even though they may look different, e.g. 50:100 and 1:2.

**Proportion** is when two or more quantities have the same relative size.

**Unitary** means the value of a single unit. Think of other words that begin with 'uni' meaning 'one' such as unicycle, unison, uniform etc.

### Simplifying Ratios

Simplify...

4 : 12 : 28

↶ ÷ 4   ↶ ÷ 4   ↶ ÷ 4

1 : 3 : 7

30 out of 200 students travel to school by bus.

Write this proportion as a...

**Decimal**

$$30 \div 200 = 0.15$$

**Fraction**

$$\frac{30}{200} \text{ or in it's simplest form } \frac{3}{20}$$

**Percentage**

$$\frac{30}{200} \xrightarrow{\div 2} \frac{15}{100} = 15\%$$

## MATHS

**Y8 Ratio & Proportion**

SPEAK  
READ  
ARTICULATE  
THINK  
QUESTION  
WRITE  
SPELL



## KEY KNOWLEDGE

**Directly Proportional** is when one amount **increases**, another amount **increases** at the same rate.

The symbol for "directly proportional" is  $\propto$

Dog: Ears, tail and legs will grow at the same rate.



Another example; if you are paid £15 an hour then:

2 hours work = £30

3 hours work = £45

10 hours work = £150

**Inversely Proportional** is when one value **decreases** at the same rate that the other **increases**.

Seesaw: As one person goes up, the other goes down.



Another example; think about if you travelling are in a car:

As speed **increases**, travel time **decreases**.

Alternatively as speed **increases**, travel time **decreases**.

## Share £60 in the ratio 7 : 3 : 5

**Step 1**

$$7 + 3 + 5 = 15 \text{ parts}$$

$$£60 \div 15 \text{ parts} = £4$$

$$1 \text{ part} = £4$$

**Step 2**

$$\begin{array}{ccc} \textcircled{£4} & \textcircled{£4} & \textcircled{£4} & \textcircled{£4} & : & \textcircled{£4} & \textcircled{£4} & : & \textcircled{£4} & \textcircled{£4} & \textcircled{£4} \\ \textcircled{£4} & \textcircled{£4} & \textcircled{£4} & : & \textcircled{£4} & : & \textcircled{£4} & \textcircled{£4} \end{array}$$

Answer: £28 : £12 : £20

Jane made a drink using blackcurrant and water in the ratio 3:8. Scott made the same drink but in the ratio 4:10.

Who's drink is stronger?



## FURTHER READING

<https://www.bbc.co.uk/bitesize/topics/zxw76sg>

<https://corbettmaths.com/contents/>

<https://www.pearsonactivelearn.com/app/library>