Ratio
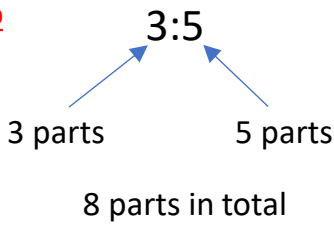
$$3:5$$

3 parts   5 parts

8 parts in total

Sharing an amount in a given ratio

Share £450 in the ratio 2:7

$$2 + 7 = 9$$

There are 9 parts in total

$$£450 \div 9 = £50$$

Each part is worth £50

$$2 \times £50 = £100$$

The first person gets £100

$$7 \times £50 = £350$$

The second person gets £350

Check
You can check your answer by adding the amounts together.

$$£100 + £350 = £450$$

£450 shared in the ratio 2:7
$$= £100 : £350$$

Simplifying Ratios

As with fractions, ratios can be simplified by dividing by the same number.

Simplify 35:45

35 and 45 both end with a 5, so they are both divisible by 5

$$35 : 45 = 7 : 9$$
$$\div 5 \quad \div 5$$

Simplify $42 : 60 : 126$

42, 60 & 126 are all even so divide them all by 2

$$42 : 60 : 126$$
$$\div 2 \quad \div 2 \quad \div 2$$
$$= 21 : 30 : 63$$

21, 30 & 63 are all divisible by 3, so divide them by 3.

$$21 : 30 : 63$$
$$\div 3 \quad \div 3 \quad \div 3$$
$$= 7 : 10 : 21$$

You can have more than 2 parts

Share £270 in the ratio 3:9:4

$$5 + 9 + 4 = 18 \, part$$
$$270 \div 18 = 15$$

Each part is worth £15

$$3 \times £15 = £45$$
$$9 \times £15 = £135$$
$$4 \times £15 = £60$$

£270 shared in the ratio 3:9:4 = £45 : £135 : £60

You can have decimals in ratios

Unlike fractions, you can have decimals in ratios.

Write the ratio $0.2 : 3$ as a fraction with no decimals.

You can multiply both numbers by 10 to get rid of the decimal point.

$$0.2 : 3$$
$$\times 10 \quad \times 10$$

2 and 30 are both even so you can divide both of these by 2.

$$= 2 : 30$$
$$= 1 : 15$$

Watch out for Questions like this:

Bob and Amy receive money in the ratio $3 : 7$. Amy receives £70, how much does Bob receive?

This time you don't add the parts together, you just say Amy's 7 parts is equal to £70.

$$7 \, parts = £70$$
$$1 \, part = £70 \div 7$$
$$1 \, part = £10$$
$$3 \, parts = £30$$

This time you're finding how much 1 part is worth by dividing by the number of parts Amy received.

Bob received £30