



# Working with Ratio

## Writing Ratios

Ratios are used as a way to compare one amount to another. We use a colon to represent a ratio. For example,



**The ratio of red counters to blue counters is 2:3.** This is read as “2 to 3”.

This means that for every 2 red counters, we have 3 blue counters.

Remember that order matters. If we wrote 3:2, that would mean that for every 3 red counters, we have 2 blue counters.

## Simplifying Ratios

To simplify a ratio, divide each number by the highest common factor. Make sure that the units match before doing this.

### Example 1

Simplify 10:15.

Both 10 and 15 are divisible by 5.

$$10 \div 5 = 2$$

$$15 \div 5 = 3$$

The answer is 2:3.

### Example 2

Simplify 20:36:16

The highest common factor might not be instantly obvious so look for any common factor. We could begin by dividing by 2 to get 10:18:8

We can see that each number can be divided by 2 again.

The answer is 5:9:4.

**Your Turn**

- Simplify the following ratios:
  - 4:10
  - 21:14
  - 9:12
  - 50:20
  - 3:9:6
  - 20:35:15
- A shelter contains 8 cats and 20 dogs. Write the ratio of cats to dogs, giving your answer in its simplest form.
- A box contains blue sweets and orange sweets. There are 30 sweets altogether. 6 of the sweets are blue. Write the ratio of blue sweets to orange sweets in its simplest form.
- Write the following ratios in their simplest form. Remember to convert them into the same units first!
  - 4m:80cm
  - 70p:£2
  - 6 days:2 weeks
  - 3kg:400g
  - 2.5km:900m
  - 6 hours:20 minutes

**Challenge**

The ratio of red beads to blue beads is 3:5. Given that there are 12 red beads, work out how many blue beads there are.