# Ratios Example

Divide a total in a given ratio using equal parts and proportional reasoning.

A ratio compares quantities by division and describes their relative sizes. A ratio of 3:5 represents three equal parts for the first share and five for the second. Equivalent ratios result when both terms are multiplied or divided by the same nonzero number. Proportional reasoning supports measurement, maps, recipes, and trade.

## FORMULA

**For ratio a:b and total T: first share = T x a/(a+b); second share = T x b/(a+b).**

## WORKED EXAMPLE

**Divide 64 in the ratio 3:5.**

### 1. Count the total parts

Add the ratio terms to find how many equal parts make the whole.

**3 + 5 = 8 parts**

### 2. Find the value of one part

Divide the total by the number of equal parts.

**64 / 8 = 8 per part**

### 3. Calculate each share

Multiply the value of one part by each ratio term.

**3 x 8 = 24; 5 x 8 = 40**

**64 x 3/8 = 24; 64 x 5/8 = 40**

The shares are 24 and 40, in the same order as the ratio terms.

## CHECK

The shares add to the original total, and their ratio reduces to 3:5.

**24 + 40 = 64; 24:40 = 3:5**

**Remember:** For a:b, there are a+b parts. One part is T/(a+b); multiply it by each ratio term.