

Grade 6 - Ratio Tables and Graphs of Ratios - Lesson

Common Core 6.RP.A.3a · maths-pdf.fr/en/

This **ratio tables lesson** for 6th Grade covers ratio tables and graphs of ratios (Common Core 6.RP.A.3a), with a free PDF to print.

A ratio table lists equivalent ratios, pairs of numbers made by multiplying or dividing both numbers of a ratio by the same number. To find a missing value, find the scale factor between columns and apply it to the other number. You can plot each pair as a point, and equivalent ratios fall on a straight line through the origin.

Grade 6 · Common Core State Standards: **6.RP.A.3a**

Key facts in this ratio tables lesson

Key facts

- Each column of a ratio table is an equivalent ratio.
- Multiply or divide both numbers by the same number; adding does not work.
- A double number line shows the same ratio on two scales.
- Plot each pair as (x, y); equivalent ratios lie on a line through the origin.
- To compare ratios, make one quantity the same in both tables.

What is a ratio table?

A **ratio table** lists pairs of numbers that make the same ratio. Every column keeps the same comparison, so one column can be built from another by multiplying or dividing both numbers by the same number.

Ratio table

In a ratio table, each pair of numbers is an **equivalent ratio**. To go from one column to another, multiply or divide *both* numbers by the same nonzero number.

Rice (cups)	2	4	6	8
Water (cups)	3	6	9	12

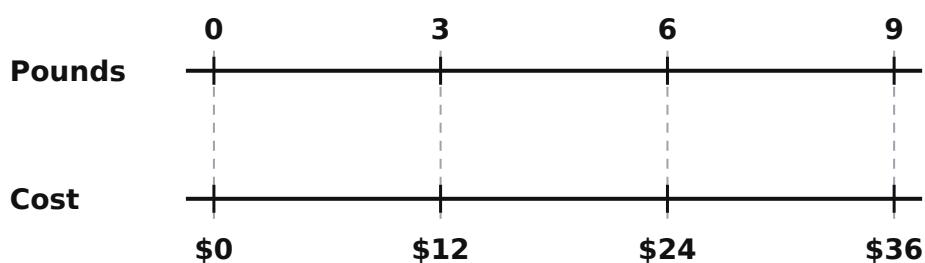
A ratio table lists equivalent ratios. Each column is the ratio 2 to 3 scaled.

How do you find missing values?

1. Find a column where both numbers are known.
2. Decide what you multiply or divide by to reach the new column.
3. Do the same to the other number.

Example: To find the water for 10 cups of rice at the ratio 2:3, notice that $10 \div 2 = 5$. Then $3 \times 5 = 15$ cups of water.

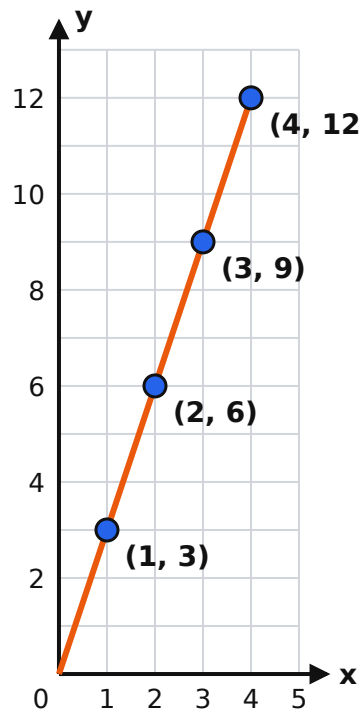
Adding the same number to both numbers does *not* keep a ratio equivalent. The pair 2 and 3 plus 4 gives 6 and 7, and 6:7 is not 2:3.



A double number line shows the same ratio on two lines.

How do you graph a ratio?

Write each column as an ordered pair (first number, second number) and plot it. The first number is the x-coordinate and the second number is the y-coordinate.



Each ratio pair is a point. Equivalent ratios lie on a straight line through the origin.

Points from equivalent ratios fall on a straight line that passes through $(0,0)$. If a point lies off the line, its ratio is different.

How do you compare two ratios with tables?

Build both tables until one quantity matches. Recipe A uses 2:5 juice to water and Recipe B uses 3:6. With 30 cups of water, A has $2 \times 6 = 12$ cups of juice and B has $3 \times 5 = 15$ cups.

Recipe	Juice	Water
A	12	30
B	15	30

Make one quantity the same, then compare the other.

Since 15 is greater than 12, Recipe B has the stronger juice taste.

Ratio tables lesson: questions and answers

How do you make a ratio table?

Write the ratio in the first column, then multiply both numbers by 2, 3, 4, and so on to fill more columns. Each column is an equivalent ratio.

How do you find a missing number in a ratio table?

Find the number you multiply or divide by to get from a known column to the new column, then do the same to the other number in the column.

Why can you not add the same number to both parts of a ratio?

Adding changes the comparison. The ratio 2 to 3 is not equal to 6 to 7, but 2 to 3 is equal to 6 to 9 when both numbers are multiplied by 3.

What does the graph of equivalent ratios look like?

The points lie on a straight line that goes through the origin, (0, 0). If a point is off the line, it is not an equivalent ratio.

How do you compare two ratios using tables?

Extend both tables until one of the quantities is the same, such as 30 cups of water, then compare the other quantity.

How to use this ratio tables lesson

Read the definitions first, then follow the worked method line by line and redo the example on paper without looking. When every step makes sense, move on to the worksheet, then check yourself with the quiz.

Download the ratio tables lesson as a PDF with the button below and keep it with your notes.