How can ratios be calculated in R, and what are some examples?

Authored by

stats writer

June 27, 2024

Ratios can be easily calculated in R by using the division operator and the "ratio" function. The division operator ("/") can be used to divide two numbers and calculate their ratio. Alternatively, the "ratio" function can be used to find the ratio between two variables or columns in a data frame. For example, if we have a data frame with columns representing the number of male and female employees in a company, we can use the "ratio" function to calculate the male-to-female employee ratio. Another example could be calculating the ratio of sales to expenses in a financial dataset. Using these methods, ratios can be calculated in R for various purposes such as data analysis and financial analysis.

Calculate Ratios in R (With Examples)

You can use the following methods to calculate the ratio between values in two columns in R:

Method 1: Use Base R

```
#calculate ratio between variable1 and variable2
df$ratio <- df$variable1/df$variable1

#calculate ratio between variable1 and variable2, rounded to 2 decimal places
df$ratio <- round(df$variable1/df$variable2, 2)
```

Method 2: Use dplyr

```
library(dplyr)

#calculate ratio between variable1 and variable2
df <- df %>%
```

```
mutate(ratio = variable1/variable2)

#calculate ratio between variable1 and variable2, rounded to 2 decimal places
df <- df %>%
mutate(ratio = round(variable1/variable2, 2))
```

This tutorial explains how to use each method in practice with the following data frame that shows the total shots made and attempted by various basketball players:

```
#create data frame
df <- data.frame(players=c('A', 'B', 'C', 'D', 'E', 'F', 'G', 'H'),
makes=c(4, 4, 3, 6, 7, 8, 3, 10),
attempts=c(12, 7, 5, 6, 10, 12, 5, 19))

#view data frame
df

players makes attempts
1 A 4 12
2 B 4 7
3 C 3 5
4 D 6 6
```

5 E 7 10

6 F 8 12

7 G 3 5

8 H 10 19

Example 1: Calculate Ratios Using Base R

The following code shows how to calculate the ratio between the values in the makes and attempts columns using base R:

```
#calculate ratio between makes and attempts columns
df$ratio <- df$makes/df$attempts

#view updated data frame
df

players makes attempts ratio
1 A 4 12 0.3333333
2 B 4 7 0.5714286
3 C 3 5 0.6000000
4 D 6 6 1.0000000
5 E 7 10 0.7000000
6 F 8 12 0.6666667
7 G 3 5 0.6000000
```

8 H 10 19 0.5263158

The ratio of makes to attempts for the first player is 4 / 12 = 0.33.

In other words, the first player made about 33% of their shot attempts.

We can interpret the ratio values for every other player in a similar manner.

We can also use the round() function to round the ratio values to a certain number of decimal places:

```
#calculate ratio between makes and attempts columns, rounded to 2 decimal places
df$ratio <- round(df$makes/df$attempts, 2)

#view updated data frame
df

players makes attempts ratio
1 A 4 12 0.33
2 B 4 7 0.57
3 C 3 5 0.60
4 D 6 6 1.00
```

5 E 7 10 0.70

6 F 8 12 0.67

7 G 3 5 0.60

8 H 10 19 0.53

Each of the values in the ratio column are now rounded to two decimal places.

Example 2: Calculate Ratios Using dplyr

```
library(dplyr)#add new column that shows ratio of makes to attempts
df <- df %>%
mutate(ratio = makes/attempts)

#view updated data frame
df
```

players makes attempts ratio

1 A 4 12 0.3333333

2 B 4 7 0.5714286

3 C 3 5 0.6000000

4 D 6 6 1.0000000

5 E 7 10 0.7000000

6 F 8 12 0.6666667

7 G 3 5 0.6000000

8 H 10 19 0.5263158

We can also use the round() function to round the ratio values to a certain number of decimal places:

```
library(dplyr)#add new column that shows ratio of makes to attempts, rounded to 2 decimal places
df <- df %>%
mutate(ratio = round(makes/attempts, 2))

#view updated data frame
df
```

players makes attempts ratio

1 A 4 12 0.33

2 B 4 7 0.57

3 C 3 5 0.60

4 D 6 6 1.00

5 E 7 10 0.70

6 F 8 12 0.67

7 G 3 5 0.60

8 H 10 19 0.53

Each of the values in the ratio column are now rounded

to two decimal places.

Notice that the base R method and the dplyr method produce the same results.