How to Find t Critical Values in R?

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In order to find the critical values in R, you need to use the qnorm function to calculate the critical values based on a given alpha value and the degrees of freedom. The qnorm function is part of the stats library and requires the user to specify the alpha value (e.g. 0.10) and the degrees of freedom (e.g. 3). The output from the qnorm function is the critical value for the given alpha and degrees of freedom.

Whenever you conduct a t-test, you will get a test statistic as a result. To determine if the results of the t-test are statistically significant, you can compare the test statistic to a **t critical value**.

If the absolute value of the test statistic is greater than the t critical value, then the results of the test are statistically significant.

The t critical value can be found by using a or by using statistical software.

To find the t critical value, you need to specify:

A significance level (common choices are 0.01, 0.05, and 0.10)
The degrees of freedom

Using these two values, you can determine the t critical value to be compared with the test statistic.

How to Find the T Critical Value in R

To find the T critical value in R, you can use the qt() function, which uses the following syntax:

qt(p, df, lower.tail=TRUE)

where:

p: The significance level to use
df: The degrees of freedom
lower.tail: If TRUE, the probability to the left of **p** in the t distribution is returned. If FALSE, the probability to the right is returned. Default is TRUE.

The following examples illustrate how to find the t critical value for a left-tailed test, right-tailed test, and a two-tailed test.

Left-tailed test

Suppose we want to find the t critical value for a left-tailed test with a significance level of .05 and degrees of freedom = 22:

#find t critical value
qt(p=.05, df=22, lower.tail=TRUE)

-1.717144

The t critical value is **-1.7171**. Thus, if the test statistic is less than this value, the results of the test are statistically significant.

Right-tailed test

#find t critical value
qt(p=.05, df=22, lower.tail=FALSE)

1.717144

The t critical value is **1.7171**. Thus, if the test statistic is greater than this value, the results of the test are statistically significant.

Two-tailed test

Suppose we want to find the t critical values for a two-tailed test with a significance level of .05 and degrees of freedom = 22:

#find two-tailed t critical values
qt(p=.05/2, df=22, lower.tail=FALSE)

2.073873

Whenever you perform a two-tailed test, there will be two critical values. In this case, the T critical values are **2.0739** and **-2.0739**.

Thus, if the test statistic is less than -2.0739 or greater than 2.0739, the results of the test are statistically significant.

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