

How can I use the TINV function in SAS, and what are some examples of its application?

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The TINV function in SAS is a statistical function that calculates the inverse of the Student's t-distribution. It can be used to determine the critical value of a t-test, which is a commonly used statistical test for comparing the means of two groups. This function is useful in various applications, such as hypothesis testing, determining confidence intervals, and assessing the significance of differences between group means. To use the TINV function in SAS, the user needs to input the desired probability level, degrees of freedom, and optionally the tail option. For example, the function can be used to calculate the critical value for a two-tailed t-test with a probability level of 0.05 and 20 degrees of freedom. The TINV function in SAS provides a convenient and efficient way to perform these calculations, making it a valuable tool for data analysis.

Use the TINV Function in SAS (With Examples)

You can use the TINV function in SAS to find critical values from the t distribution.

This function uses the following basic syntax:

TINV(p, df)

where:

p: 1 - the significance level
df: The degrees of freedom

The following example shows how to use the TINV function to find the t critical value for a left-tailed test, right-tailed test, and a two-tailed test.

Example 1: Using TINV Function for 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:

We can use the TINV function to calculate this value:

```
/*create dataset that contains t critical value*/
```

```
data my_data;  
critical_val=tinv(.05, 22);  
put critical_val=;  
run;
```

```
/*view results*/  
proc printdata=my_data;
```

Obs	critical_val
1	-1.71714

The t critical value for a significance level of 0.05 and degrees of freedom = 22 is -1.71714.

Thus, if the test statistic is less than this value then the results of the test are statistically significant.

Example 2: Using TINV Function for Right-Tailed Test

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

We can use the TINV function to calculate this value:

```
/*create dataset that contains t critical value*/  
data my_data;  
critical_val=tinv(.95, 22);  
put critical_val=;  
run;  
  
/*view results*/  
proc printdata=my_data;
```

Obs	critical_val
1	1.71714

The t critical value for a significance level of 0.05 and degrees of freedom = 22 is 1.71714.

Thus, if the test statistic is greater than this value then the results of the test are statistically significant.

Example 3: Using TINV Function for Two-Tailed Test

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

We can use the TINV function to calculate this value:

```
/*create dataset that contains t critical value*/  
data my_data;  
critical_val=tinv(.05/2, 22);  
put critical_val=;  
run;  
  
/*view results*/  
proc printdata=my_data;
```

Obs	critical_val
1	-2.07387

Whenever you perform a two-tailed test, there will be two critical values. In this case, the t critical values are -2.07387 and 2.07387.

Thus, if the test statistic is less than -2.0739 or greater

than 2.0739 then the results of the test are statistically significant.

The following tutorials explain how to perform other common tasks in SAS:

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