

# How can the CINV function be used in SAS, and what are some examples of its usage?

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The CINV function in SAS is a statistical function used to calculate the inverse cumulative probability for a given probability distribution. It can be used to determine the cutoff point at which a certain percentage of the data falls below or above. This function is primarily used in data analysis and modeling to make predictions and determine confidence intervals.

One example of using the CINV function is in market research to determine the minimum and maximum values for a product's demand. By inputting the desired level of confidence and the estimated mean and standard deviation of demand, the CINV function can calculate the upper and lower limits of demand. This information can then be used to make informed decisions about production and pricing strategies.

In financial analysis, the CINV function can be used to determine the optimal level of risk for a portfolio. By inputting the desired level of risk and the expected return on different assets, the CINV function can calculate the cutoff point for the probability of achieving that return. This can help investors make informed decisions about asset allocation and risk management.

Overall, the CINV function in SAS is a powerful tool for analyzing and interpreting data in various fields, including market research, finance, and statistics. Its versatility and accuracy make it a valuable function for making informed decisions based on data analysis.

## Use the CINV Function in SAS (With Examples)

**You can use the CINV function in SAS to find critical values from the Chi-Square distribution.**

**This function uses the following basic syntax:**

**CINV(p, df)**

**where:**

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

**The following example shows how to use the CINV**

## function in practice to calculate Chi-Square critical values.

### Example: How to Use CINV Function in SAS to Calculate Chi-Square Critical Values

Suppose we would like to find the Chi-Square critical value for a significance level of 0.05 and degrees of freedom = 11.

We can use the CINV function to calculate this value:

```
/*create dataset that contains Chi-Square critical value*/  
data my_data;  
critical_val=cinv(.95, 11);  
put critical_val=;  
run;  
  
/*view results*/  
proc printdata=my_data;
```

Obs	critical_val
1	19.6751

The Chi-Square critical value for a significance level of

**0.05 and degrees of freedom = 11 is 19.67514.**

**Thus, if we're conducting some type of Chi-Square test then we can compare the Chi-Square test statistic to 19.67514.**

**If the test statistic is greater than 19.67514, then the results of the test are statistically significant.**

**It's worth noting that smaller values for the significance level will lead to larger Chi-Square critical values.**

**For example, consider the Chi-Square critical value for a significance level of 0.01, and degrees of freedom = 11:**

```
/*create dataset that contains Chi-Square critical value*/  
data my_data;  
critical_val=cinv(.99, 11);  
put critical_val=;  
run;
```

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

Obs	critical_val
1	24.7250

**The Chi-Square critical value for a significance level of 0.01 and degrees of freedom = 11 is 24.7250.**

**Note: You can also use the to find critical values by hand. The values that you find in the table will match the ones calculated by the CINV function in SAS.**

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