Appendix 9: Program to Calculate the Test Statistic & P-Value for a Goodness of Fit Test

The following program can be used to calculate the $\chi^2$ test statistic (chi-square test statistic) and the P-Value for a hypothesis for a Multinomial Experiment or "Goodness of Fit" test.

**PROGRAM: BESTFIT**

:ClrHome
:Disp "ENTER CATEGORIES"
:Input K
:K-1 D
:(L1-L2)/L2 L3
:sum(L3) T
:$\chi^2$ cdf(T,1e99,D) P
:ClrHome
:Disp "TEST STAT"
:Disp "CHI SQUARE=
:Disp T
:Disp "P-VALUE"
:Disp P

Note: The $\chi^2$ cdf distribution can be entered by pressing the 2nd key and DISTR 7: $\chi^2$ cdf. There are three arguments needed for the chi-square cdf function. You need the low bound, high bound, and degrees of freedom.

$\chi^2$ cdf (Low,High,df).

When running this program:

your **observed frequencies** must be entered in list one, L1
your **expected frequencies** must be entered in list two, L2.