

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

χ^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.