

Appendix 5: Program to Calculate the P-Value for a Hypothesis Test of Standard Deviation

The following program can be used to calculate the P-Value for a hypothesis for a standard deviation or variance.

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PROGRAM:TESTSDEV
:ClrHome
:Disp "ENTER N"
:Input N
:Disp "ENTER S"
:Input S
:Disp "ENTER  $\sigma$ x"
:Output(5,8," ")
:Input X
:Disp "ENTER TAIL(S)"
:Disp " 1-LEFT"
:Disp " 2-TWO"
:Disp " 3-RIGHT"
:Input T
:N-1|| D
:D*S2/X2|| C
:ClrHome
:Disp "TEST STAT="
:Disp C
:If T=1 ← If can be found: PRGM, CLT, 1:If
: $\chi^2$ cdf(0,C,D)|| P
:If T=3
: $\chi^2$ cdf(C,1E99,D)|| P
:If T=2 ← Then can be found: PRGM, CLT, 2:Then
: $\chi^2$ cdf(C,1E99,D)|| P
:If P>.5
:1-P|| P
:2*P|| P
:End
: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).