P–Values, Computed Test Statistics & TI

What is P–Value?

Assuming the null hypothesis is true, P–Value is the probability of getting a value of a test statistic that is at least as extreme as the one suggested by the sample data.

How to use the P–Value with the given significance level α:

$\boxed{\textbf{Support } H_0 \textbf{ when P–Value} > \alpha\textbf{, Reject } H_0 \textbf{ when P–Value} \le \alpha.}$

When Computed Test Statistics Is $z = z_0$

Use the absolute value of the given computed test statistics.

1. **One Tail–Test:** **P–Value** = **normalcdf** $(|z_0|, E99, 0, 1)$
2. **Two Tail–Test:** **P–Value** $= 2\times$ **normalcdf** $(|z_0|, E99, 0, 1)$

Note: Press [2ND] [VARS] [normalcdf(]

When Computed Test Statistics Is $t = t_0$

Use the absolute value of the given computed test statistics.

1. **One Tail–Test:** **P–Value** = **tcdf** $(|t_0|, E99, df)$
2. **Two Tail–Test:** **P–Value** $= 2\times$ **tcdf** $(|t_0|, E99, df)$

Note: Press [2ND] [VARS] [tcdf(]

When Computed Test Statistics Is $\chi^2 = \chi^2_0$

1. **One Tail–Test:**
   - (a) **When** $\chi^2_0 > df - 0.667$**:** **P–Value** $= \chi^2 cdf(\chi^2_0, E99, df)$
   - (b) **When** $\chi^2_0 < df - 0.667$**:** **P–Value** $= \chi^2 cdf(0, \chi^2_0, df)$
2. **Two Tail–Test:**
   - (a) **When** $\chi^2_0 > df - 0.667$**:** **P–Value** $= 2 \times \chi^2 cdf(\chi^2_0, E99, df)$
   - (b) **When** $\chi^2_0 < df - 0.667$**:** **P–Value** $= 2 \times \chi^2 cdf(0, \chi^2_0, df)$

Note: Press [2ND] [VARS] $[\chi^2 cdf($]

When Computed Test Statistics Is $F = F_0$

1. **Left Tail–Test:** **P–Value** $= Fcdf(\mathbf{0}, F_0, Ndf, Ddf)$
2. **Right Tail–Test:** **P–Value** $= Fcdf(F_0, E99, Ndf, Ddf)$
3. **Two Tail–Test:**
   - (a) **Compute both Right–Tail and Left–Tail.**
   - (b) **Multiply the smaller result by 2.**

Note: Press [2ND] [VARS] $[Fcdf($]