QUICK HELP

Test for a Mean σ unknown (t test)

Purpose: To use a sample mean to make conjectures about the population mean.

Hypothesis:

$H_0 : \mu = x$

$H_1 : \mu \neq x \ (two\,tailed\,test)$

$\quad \mu > x \ (one\,tailed\,test; upper\,threshold)$

$\quad \mu < x \ (one\,tailed\,test; lower\,threshold)$

Required Information:

a = level of significance
n = sample size
s = sample standard deviation
$\overline{x}$ = sample mean
degrees of freedom (d) = n-1

Test Statistic:

$$t = \frac{\overline{x} - \mu}{s / \sqrt{n}}$$

Test Limit:

For a two tailed test, the test limit will be $\pm t_{a/2}(d)$.

For a one tailed test with an upper threshold, the test limit will be $+t_a(d)$.

For a one tailed test with a lower threshold, the test limit will be $-t_a(d)$.