QUICK HELP

MAT 109 Statistics

Test for a Mean

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

Hypothesis:

$H_0 : \mu = x$

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

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

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

Required Information:

a = level of significance
n = sample size
σ = population standard deviation
$\bar{x}$ = sample mean

Test Statistic:

$$z = \frac{\bar{x} - \mu}{\sigma_{\bar{x}}} \qquad \sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

Test Limit:

For a two tailed test, the test limit will be $\pm z$ such that the area between –z and +z is 1-a. Reverse look up $\frac{1-a}{2}$.

For a one tailed test with an upper threshold, the test limit will be z such that the area to the right of z is a. Reverse look up $.5 - a$.

For a one tailed test with a lower threshold, the test limit will be z such that the area to the left of z is a. Reverse look up $.5 - a$.