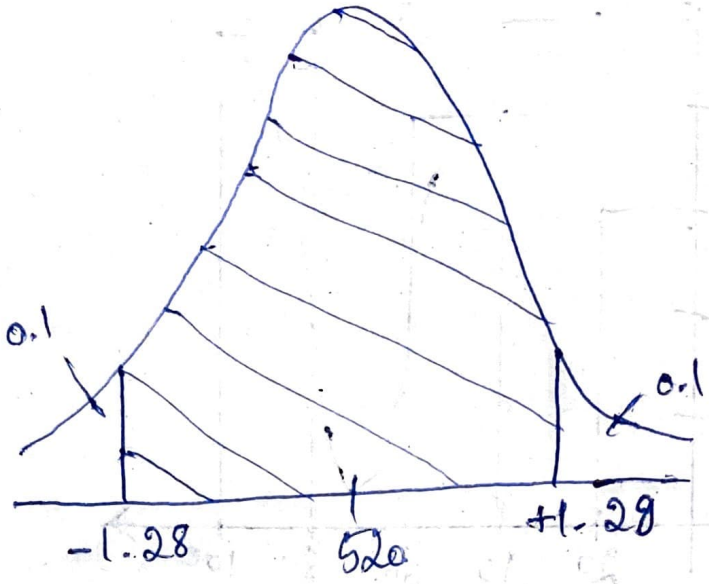
Assignment 2:- In a quant test of CAT Exam, the population std deviation is known to be 100. A sample of 25 tests taken has a mean of 520. Construct an 80% CI about mean.

$\Rightarrow$ $\sigma = 100$, $n = 25$ $\bar{x} = 520$ CI = 80%.

$\alpha = 1 - 0.8 = 0.2$

$\alpha = 0.2$,

$1 - 0.1 = 0.9$



Point estimate ± Margin of Error.

$$\bar{x} \pm Z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

Here, $Z_{\alpha/2} = Z_{0.2/2} = Z_{0.1} = 1.28$.

Lower fence $= \bar{x} - Z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$

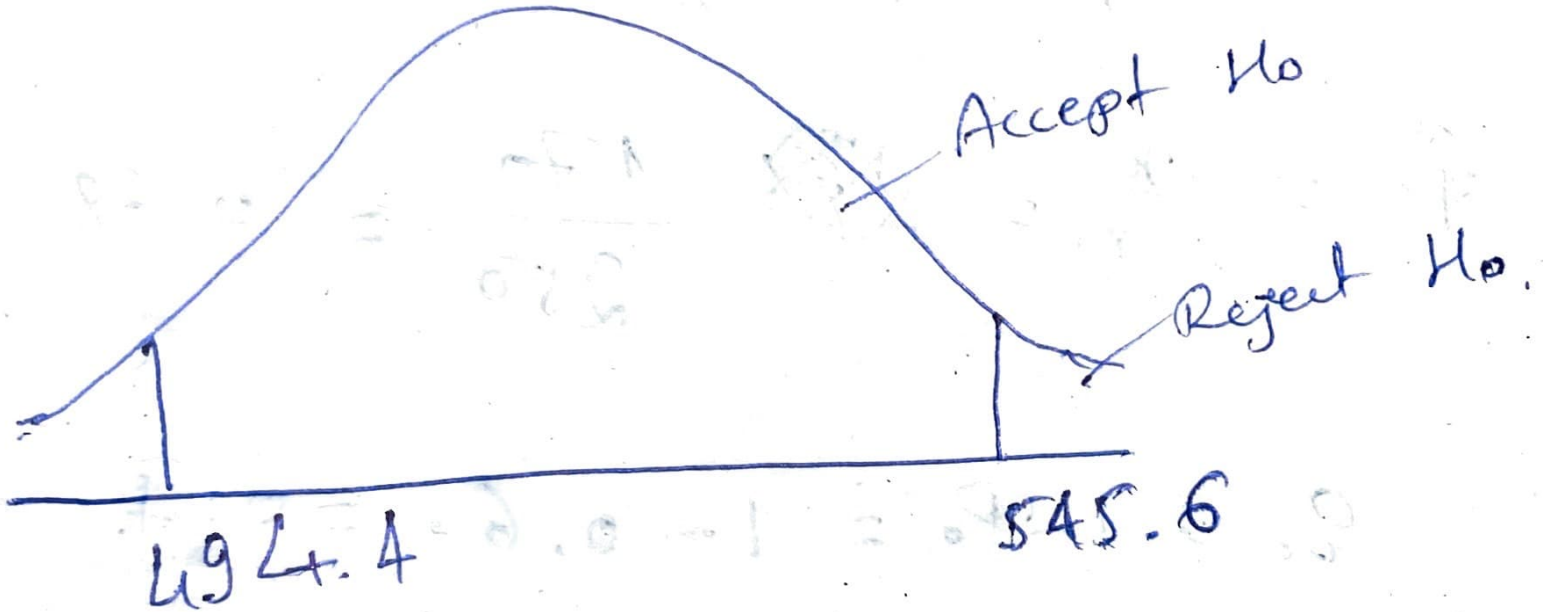
$= 520 - 1.28 \left(\frac{100}{\sqrt{25}}\right)$

$= 494.4$.

Higher fence $= \bar{x} + Z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$

$= 520 + 1.28 \left(\frac{100}{\sqrt{25}}\right)$

$= 545.6$


Accept Ho
Reject Ho.
494.4
545.6