

Question: 2:

In a Quant test of the CAT exam, the population SD known to 100. A sample of 25 tests taken has a mean of 520. Construct 80% CI about the mean.

$$\sigma = 100$$

$$n = 25$$

$$\bar{x} = 520$$

$$\text{Std. Error} = Z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

$$\alpha = 1 - CI$$

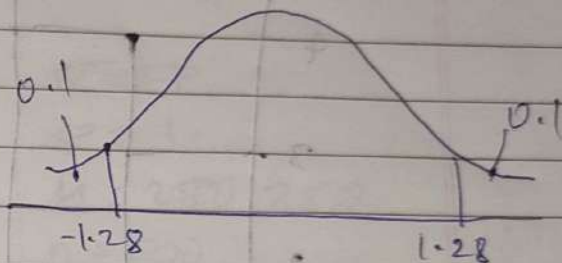
$$= 1 - 0.8$$

$$= 0.2$$

$$Z_{\alpha/2} = Z_{0.1}$$

In Z-table for 0.9

$$Z \Rightarrow 1.28$$



Lower Fence = Point Estimate - Margin of Error

$$= 520 - Z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

$$= 520 - 1.28 \times 100 / \sqrt{25}$$
$$= 518 \quad 494.4$$

Higher Fence = Point Estimate + Margin of Error

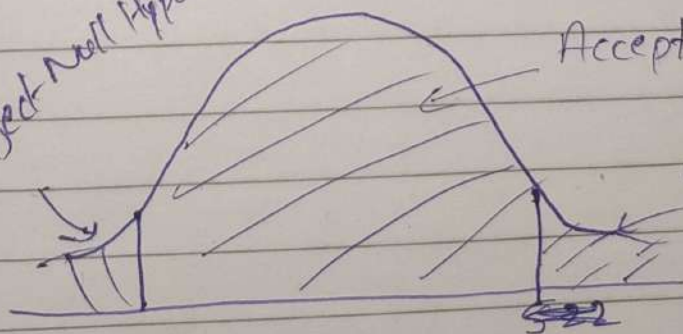
$$= 520 + 1.28 (100 / \sqrt{25})$$

$$= 522 \quad 545.6$$

Reject Null Hypothesis

Accept Null Hypothesis

Reject Null Hypothesis



518

494.4

522

545.6