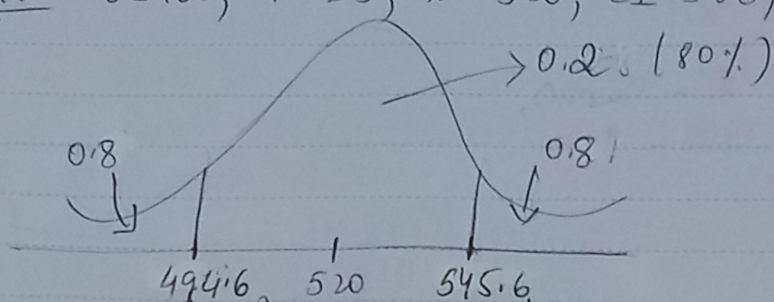


Assignment - 4

Soln:- Given:- $\sigma = 100$, $n = 25$, $\bar{x} = 520$, $CI = 80\%$, $\Rightarrow \alpha = 0.2$



$$\begin{aligned} & \bar{x} + \alpha_{z/2} \left(\frac{\sigma}{\sqrt{n}} \right) \\ &= 520 \pm 1.28 \times \frac{100}{\sqrt{25}} \\ &= 520 \pm 1.28 \times \frac{100}{5} \\ &= 520 \pm (1.28 \times 20) \\ &= 520 \pm 25.6 \end{aligned}$$

$$\begin{aligned} \alpha_{0.2/2} &= \alpha_{0.1} \\ 1 - 0.1 &= 0.9 \\ \alpha_{z/2} &= 1.28 \end{aligned}$$

$$\begin{aligned} \text{Lower Fence} &= \bar{x} - \alpha_{z/2} \left(\frac{\sigma}{\sqrt{n}} \right) \\ &= 520 - 25.6 \\ &= 494.6 \end{aligned}$$

$$\begin{aligned} \text{Higher Fence} &= \bar{x} + \alpha_{z/2} \left(\frac{\sigma}{\sqrt{n}} \right) \\ &= 520 + 25.6 \\ &= 545.6 \end{aligned}$$

$\therefore \bar{x}$ is between 494.6 - 545.6, therefore, we accept null hypothesis.