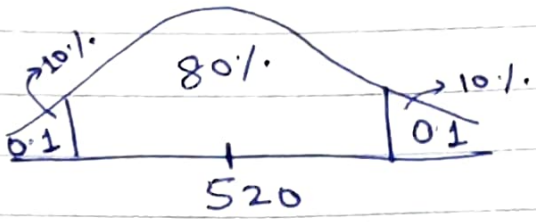
Assignment: →

Q. $\sigma = 100$, $n = 25$, $\bar{x} = 520$, construct a 80% C.I about the mean

Sol.



C.I = Point Estimate ± Margin of Error

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

$= 520 \pm Z_{\frac{0.20}{2}} \times \frac{100}{\sqrt{25}}$

$= 520 \pm Z_{0.10} \times 20$

$= 520 \pm 0.9 \times 20$

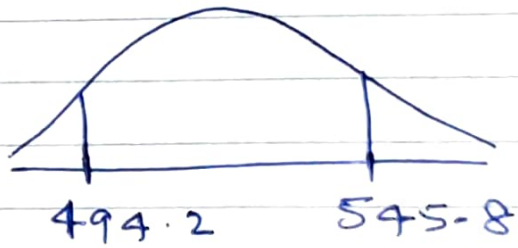
$= 520 \pm 1.29 \times 20$

Lowe fence $= 520 - 1.29 \times 20$

$= 520 - 25.8 \Rightarrow 494.2$

Higher fence $= 520 + 25.8 \Rightarrow 545.8$

→ It means anything less than 494.2 will be rejected and more than 545.8 will also be rejected



→ It also means based on 80% C.I my population mean (μ) will be falling b/w (Range) → 494.92 and 545.8