Name : Manjeet Tanwar

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7/7/22 ASSIGNMENT

Q In the Quant test of CAT exam, the population standard deviation is known to be 100. A sample of 25 test takers has a mean of 520. Construct 80% CI about the mean?

→ Given: $\sigma = 100$, $n = 25$, $\bar{x} = 520$, C.I = 80% = 0.8

$\alpha = 1 - 0.8 = 0.2$

C.I = Point Estimate ± Margin Error

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

$= 520 \pm Z_{0.2/2} \frac{100}{\sqrt{25}}$

$= 520 \pm Z_{0.1} \frac{100}{5}$

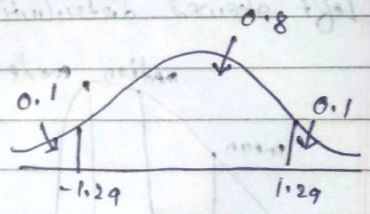
$= 520 \pm Z_{0.1} (20)$

$= 520 \pm 1.29 (20)$

$= 520 \pm 25.8$

Lower Limit $= 520 - 25.8 = 494.2$

Higher Limit $= 520 + 25.8 = 545.8$



$1 - 0.1 = 0.9$

z table $0.9 = 1.29$