Assignment - 2.

Q: 2 In a Quant test of the CAT Exam, the population standard deviation is known to be 100. A Sample of 25 Tests taken, has a mean of 520. Construct an 80% CI about the mean.

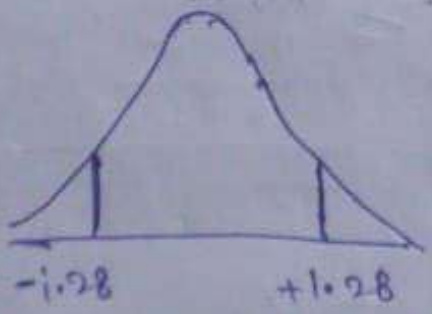
Ans:- $\sigma = 100$, $n = 25$, $\bar{x} = 520$ C.I = 80

$\alpha = 1 - CI$

$= 1 - 0.80$

$= 0.2$

$\frac{\alpha}{2} = \frac{0.2}{2} = \frac{2}{0.1} = 1.28 \rightarrow$ Z Table.



C.I = point Estimate $\pm$ Margin of Error

Lower Sense = Point Estimate - Margin of Error

$= \bar{x} - z_{\alpha/2} \times \frac{\sigma}{\sqrt{n}}$

High fence = point Estimat + margin of Error

$$\bar{x} + z_{\alpha/2} \times \frac{\sigma}{\sqrt{n}}$$

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* Lower fence: $\bar{x} - z_{\alpha/2} \times \frac{\sigma}{\sqrt{n}}$

$= 520 - 1.28 \frac{100}{\sqrt{25}}$

$= 520 - 1.28 \times 20$

$= 520 - 25.6$

$= 494.4$

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* Higher fence: $\bar{x} + z_{\alpha/2} \times \frac{\sigma}{\sqrt{n}}$

$= 520 + 1.28 \times \frac{100}{\sqrt{25}}$

$= 520 + 1.28 \times 20$

$= 520 + 25.6$

$= 545.6$