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 a ~~95%~~ 80% C.I. about mean?

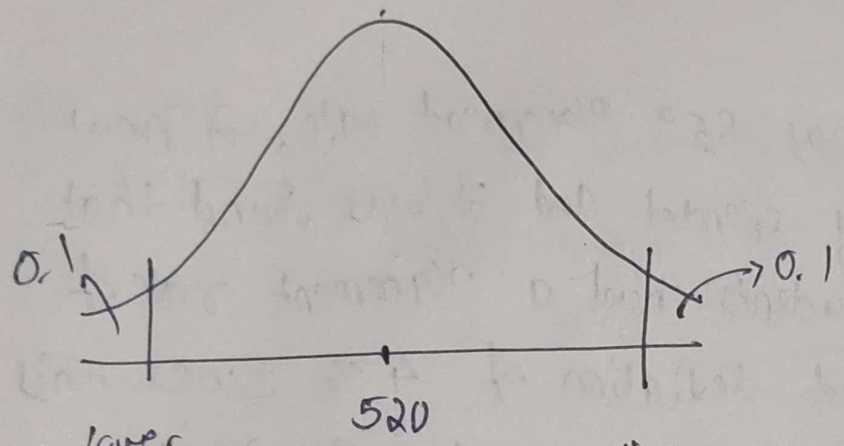
Sol. $\sigma = 100$ $n = 25$ $\bar{x} = 520$ C.I = 80%

$\alpha = 1 - C.I.$

$= 1 - 0.8$

$\alpha = 0.2$

$1 - 0.1 \Rightarrow 0.9$



$Z_{\frac{0.2}{2}} \Rightarrow Z_{0.1} \Rightarrow 1.28$

Lower fence

494.4

Higher fence

545.6

$$\text{Lower fence} = \bar{x} - Z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

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

$$= 494.4$$

$$\text{Higher fence} = \bar{x} + Z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

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

$$= 545.6$$