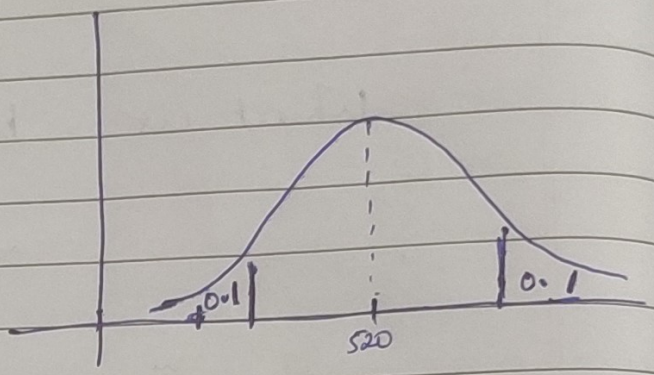
Assignment 1

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 80% Confidence Interval about the mean?

$\Rightarrow \quad \bar{x} = 520, \; n = 25, \; \sigma = 100, \; C.I = 80\%$

$\alpha = 1 - 0.8 = 0.2$



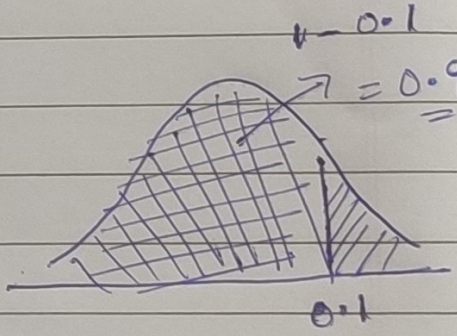
$C.I$ = Point Estimate $\pm$ Margin Error.

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

$= 520 \pm Z_{0.1/2} \times \frac{100}{\sqrt{25}} \quad = 520 \pm Z_{0.1} \times \frac{100}{5}$

$= 520 \pm 1.28 \times \frac{100}{5}^{20}$

$= 520 \pm 25.6$



$C.I = \begin{cases} 520 - 25.6 \\ 520 + 25.6 \end{cases}$

$C.I = \begin{cases} 494.4 \\ 546.6 \end{cases}$

lower fence = 494.4

higher fence = 546.6