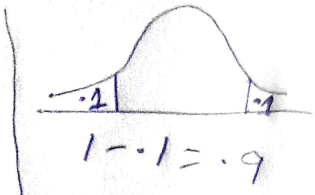
# Assignment 3

- 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% C.I about the mean.

Ans) $\sigma = 100$, $n = 25$, $\bar{x} = 520$, $\alpha = 1 - C.I = 1 - .80 = .2$

$$z_{\alpha/2} = z_{\frac{.2}{2}} = z_{.1} = 1.209$$




$$\text{Lower fence} = \bar{x} - z_{\alpha/2}\left(\frac{\sigma}{\sqrt{n}}\right)$$

$$= 520 - 1.209 \times \frac{100}{\sqrt{25}}$$

$$= 520 - 24.18$$

$$= 495.82$$

$$\text{Higher fence} = \bar{x} + z_{\alpha/2}\left(\frac{\sigma}{\sqrt{n}}\right) = 520 + 1.209 \times \frac{100}{\sqrt{25}}$$

$$= 544.18$$

- 80% CI about the mean $\bar{x}$