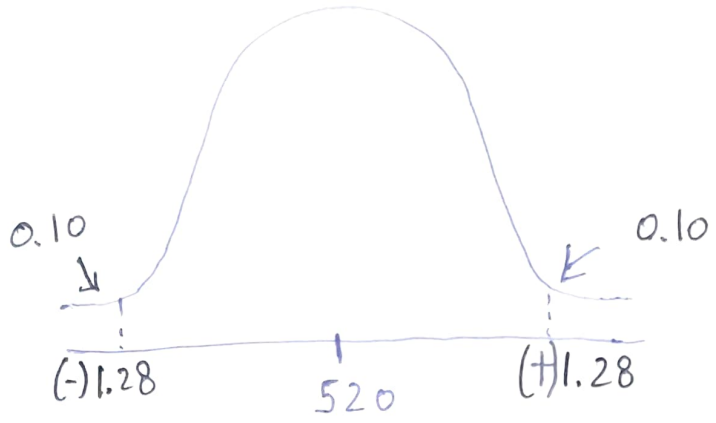
Assignment

Q) In the Quant Test of CAT exam, the Population S.D. is known to be 100. A sample of 25 test taker has a mean of 520. Construct a 80% C.I. about Mean?

Ans- $\sigma = 100$ $\quad n = 25$ $\quad \bar{x} = 520$

Point Estimate ± Margin of error

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



Significance Value = 1 - C.I. $\Rightarrow$ 1 - 80% = 1 - 0.80 = 0.20

$Z_{\alpha/2} = \frac{S.V.}{2} \Rightarrow 1 - 0.10 = 0.900 \Rightarrow$ 1.28 (z score round off)

Lower Fench

$$\bar{x} - Z_{\alpha/2} \frac{\sigma}{\sqrt{N}}$$

$$520 - 1.28\left(\frac{100}{\sqrt{25}}\right)$$

$$520 - 1.28 \times 20$$

$$\Rightarrow 520 - 25.6$$

$$\Rightarrow 494.4$$

Upper Fench

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

$$520 + 1.28\left(\frac{100}{\sqrt{25}}\right)$$

$$520 + 1.28 \times 20$$

$$\Rightarrow 520 + 25.6$$

$$\Rightarrow 545.6$$