

Assignment no-2

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 80% CI about the mean?

Ans: $\sigma = 100$, $n = 25$

$\bar{x} = 520$

~~Conf~~ $\bar{x} \pm z_{\alpha/2} \left[\frac{\sigma}{\sqrt{n}} \right] \text{ S.E}$

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

$= 520 - 1.28 \frac{100}{5}$

$= 494.4$

Upper bound = $\bar{x} + z_{\alpha/2} \frac{\sigma}{\sqrt{n}}$

$= 520 + 1.28 \times 20$

$= 545.6$

$\alpha = \text{significant value}$

$1 - \text{C.I} = 1 - 0.80$
 $= 0.2$

$z_{\frac{0.2}{2}} = z_{0.1}$
 $= 1.28$

$1 - 0.1 = 0.9$

