Assignment

Que 2) In a quant test of the CAT exam, the population standard deviation is known to be 100. A sample of 25 tests taken has a mean of 520. Construct an 80% CI about the mean.

Ans

$\sigma = 100$ CI = 80%

$n = 25$

$\bar{x} = 520$ $\alpha = 1 - CI$

$= 1 - 0.8$

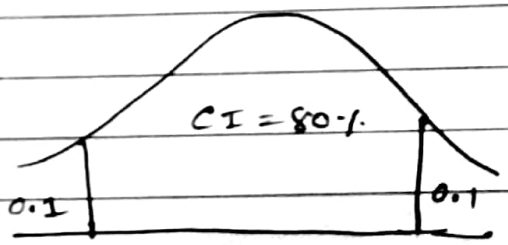
$\alpha = 0.2$

2 test

$$2_{test} = \bar{x} \pm 2_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

Higher fense

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



$$520 + 2_{\frac{0.2}{2}} \frac{100}{\sqrt{25}}$$

$1 - 0.1 = 0.9$

$2_{value} = 1.29$

$$520 + 2_{0.1} \frac{100}{\sqrt{25}}$$

$520 + 1.29 \times 20$

$520 + 25.8$

$\Rightarrow 545.8$

Lower fense

$$= \bar{x} - 2_{\alpha/2} \frac{\sigma}{\sqrt{n}}$$

$= 520 - 1.29 \times 20$

Lower fense $= 494.2$