Assignment No. 4

Q. In the quant test of CAT exam, the population standard deviation is known to be 100. A sample of 25 test taken has mean of 520. Construct 80% C.I about the mean.

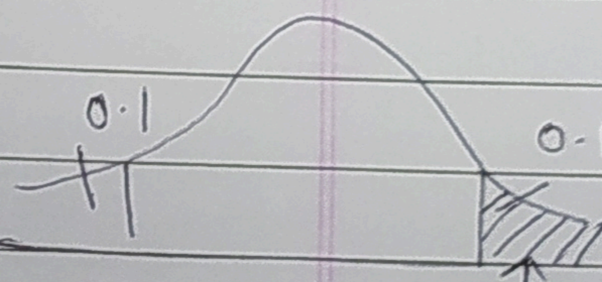
Ans ⇒ Given

$\bar{x} = 520$, $n = 25$, $\sigma = 100$

C.I = Point estimate ± margin of error

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

$\alpha = 1 - 0.8 = 0.2$



value from z table @ 0.9 = 1.29 This area 1 - 0.1 = 0.9

$C.I = 520 \pm Z_{\frac{0.2}{2}} \left(\frac{100}{\sqrt{25}}\right)$

$= 520 \pm 1.29 \left(\frac{100}{5}\right)$

Lower Fence = $520 - 1.29(20) = 494.2$

Higher Fence = $520 + 1.29(20) = 545.8$