

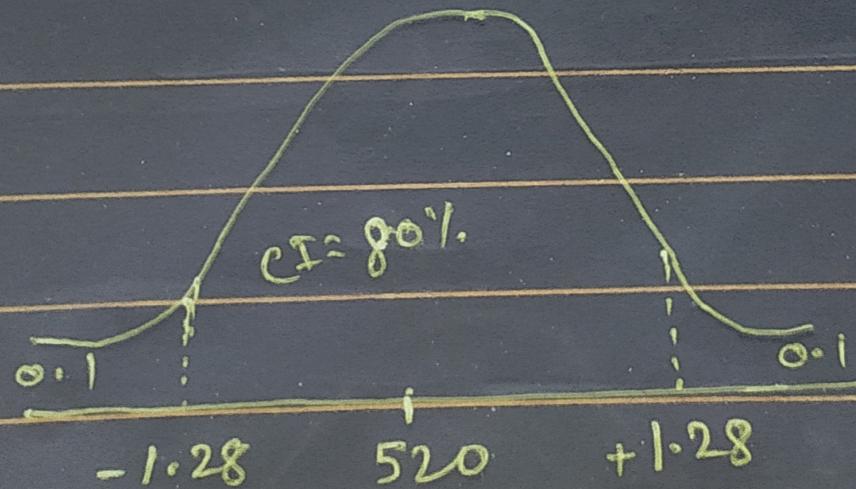
Q2. In a quant test of the CAT Exam, the population standard deviation is known to be 100. A sample of 25 tests taken has a mean of 520. Construct an 80% CI about the mean

$$\sigma = 100$$

$$n = 25$$

$$\bar{x} = 520$$

$$CI = 80\% \quad \alpha = 0.2$$



Point estimate \pm Margin of Error

$$\bar{x} \pm Z_{\alpha/2} \left(\frac{\sigma}{\sqrt{n}} \right)$$

Let

$$Z_{\alpha/2} = Z_{0.2/2} = Z_{0.1}$$

$$1 - 0.1 = 0.9$$

$$Z_{0.1} = 1.28$$

Higher fence $520 + 1.28 \left(\frac{100}{\sqrt{25}} \right)$
 $520 + 1.28 (20)$
 $520 + 25.6$
 $= 545.6$

Lower fence $520 - 1.28 (20)$
 $520 - 25.6$
 $= 494.4$