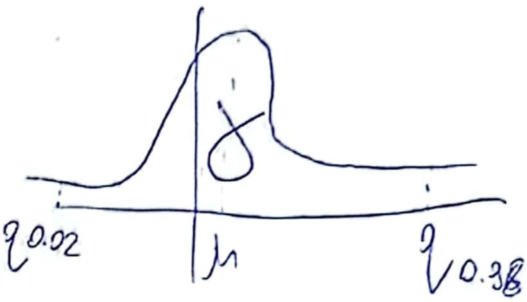
(136) $X \sim N(13, 9)$ $\mu = 13, \sigma = 3$, $\sqrt{n} = 4$ $\bar{X}_n^{(1)} = \frac{1}{4}\sum_{j=1}^{4} x_j = 13.9$

$$T = \frac{\bar{X}_n^{(1)} - \mu}{\sigma/\sqrt{n}} = \frac{13.9 - \mu}{\frac{3}{4}}$$



$\gamma = 96\% = P(-q < T < q)$

$= P\left(-q < \frac{(13.9 - \mu)\,4}{3} < q\right) =$

$= P\left(-\frac{3}{4}q < 13.9 - \mu < \frac{3}{4}q\right) =$

$= P\left(13.9 - \frac{3}{4}q_{0.98} < \mu < 13.9 + \frac{3}{4}q_{0.98}\right) =$

$= P\left(\underbrace{13.9 - \frac{3 \cdot 1.75}{4}}_{I_1} < \mu < \underbrace{13.9 + \frac{3}{4} \cdot 1.75}_{I_2}\right)$

(137) $\gamma = 95\%$ за μ

$P\left(13.9 - \frac{3}{4}q_{0.95} < \mu < 13.9 + \frac{3}{4} \cdot q_{0.95}\right) = P\left(13.9 - \frac{3}{4} \cdot 1.69 < \mu < 13.9 + \frac{3}{4} \cdot 1.65\right)$

$\gamma = 98\%$ за σ^2

$T = \frac{n\hat{\sigma}^2}{\sigma^2}$ $\hat{\sigma}^2 \approx 8.85 \Rightarrow \gamma = 98\% = P(-q < T < q) =$

$= P\left(-q_{98\%} < \frac{16.885}{\sigma^2} < +q_{98\%}\right) = P\left(-\frac{141.6}{2.05} < \sigma^2 < \frac{141.6}{2.05}\right)$

$\sigma^2 \in (-69, 69)$