



北京理工大学

BEIJING INSTITUTE OF TECHNOLOGY

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第7章.

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1. 极大似然估计.

$$(1). \hat{\theta} = -\frac{n}{\sum_{i=1}^n \ln x_i} - 1.$$

$$(2). \hat{\mu} = \frac{1}{n} \sum_{i=1}^n \ln x_i$$

$$\hat{\sigma}^2 = \frac{1}{n} \sum_{i=1}^n \left(\ln x_i - \frac{1}{n} \sum_{i=1}^n \ln x_i \right)^2$$

$$(3). \hat{\lambda} = \frac{1}{\bar{x}}$$

~~$$(4). \hat{\sigma} = \frac{1}{\sqrt{n}} \sqrt{\sum_{i=1}^n (x_i - \bar{x})^2}$$~~

$$\hat{\mu} = \ln(x_1 \cdots x_n)$$

$$\hat{\sigma} = \frac{1}{\bar{x} - \ln(x_1 \cdots x_n)}$$

$$(5) [X_{n-0.5}, X_{n+0.5}] \text{ 置信区间}$$

4. (1). $\hat{\mu} = \bar{x}$

$$(2). \hat{\sigma}^2 = \frac{1}{n} \sum_{i=1}^n (x_i - \mu)^2$$

7. $\mu = 1500$

①.



9. $E\bar{Y} = \frac{2}{n(n+1)} \sum \bar{E}(iX_i)$

$= M.$

$DY = \frac{2}{3} \frac{2n+1}{n(n+1)} \sigma^2$

$\lim_{n \rightarrow \infty} 1 = \lim_{n \rightarrow \infty} \left[1 - \frac{2(2n+1)}{3n(n+1)} \sigma^2 \right] = 1$

10. M_2 更准确

11. θ_1 更准确

13. (1). [5.628, 6.392]

(2). [5.558, 6.442]

14. μ [145.69, 154.31]

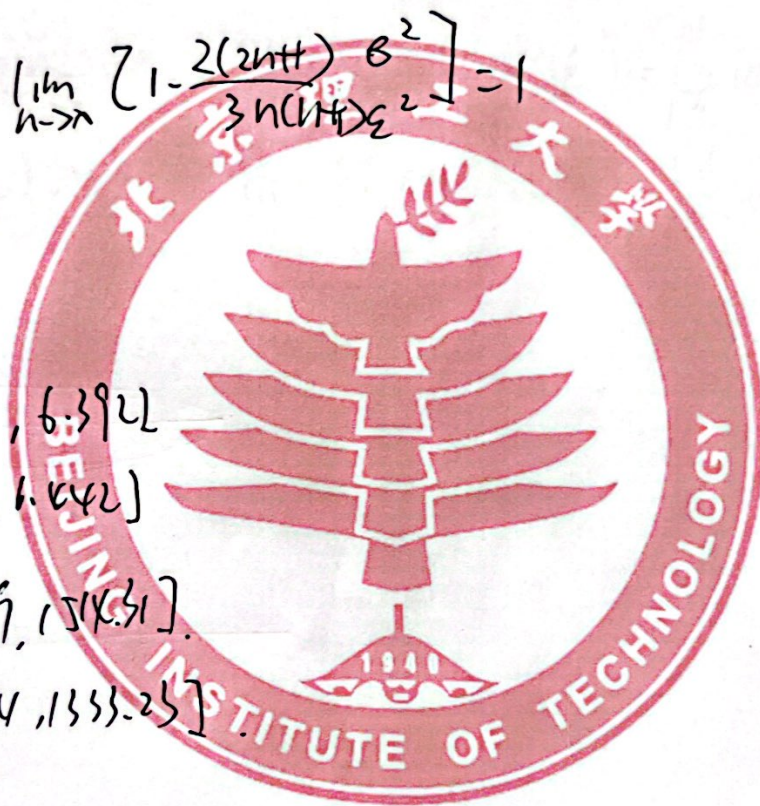
σ^2 [189.24, 1333.25]

17. 11

19. [-9.002, 9.000]

20. [0.2810, 2.843]

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解 6. 11) $P_H(\bar{X} \geq 0.8) = 1 - \Phi\left(\frac{0.8 - 0}{\sqrt{\frac{1}{4}}}\right) = 0.0250$ 另次
 $P(-) = 0.025$
 $P(2) = 0.484$
12) $n = 6$

7. $P(-) = \frac{1}{3}$ $P_H = P(X > \frac{2}{3} | H_0) = \int_{\frac{2}{3}}^1 10x = \frac{1}{3}$
 $P(2) = \frac{8}{9}$ $P_H = P(X \leq \frac{2}{3} | H_1) = \int_0^{\frac{2}{3}} 200x = \frac{8}{9}$

