

# 概统作业 (Week 14)

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## 1 (P306 T6)

(1) 对  $X_{(n)}$  有分布函数和密度函数

$$F_n(x) = \begin{cases} 0, & (x \leq 0) \\ \frac{x^n}{\theta^n}, & (x \in (0, \theta)) \\ 1, & (x \geq \theta) \end{cases} \quad f_n(x) = \begin{cases} \frac{n \cdot x^{n-1}}{\theta^n}, & (x \in (0, \theta)) \\ 0, & (\text{其他}) \end{cases}$$

故功效函数为

$$\beta_{\Psi}(\theta) = \mathbb{P}_{\theta}(X_{(n)} \leq 2.5 | H_0) = F_n(2.5) = \left(\frac{2.5}{\theta}\right)^n \quad (\theta \geq 3)$$

(2)

## 2 (P307 T9)

### 3

(1)

(2)

## 4 (P312 T38)

### 5