

例 6.7

(1)  $1-\alpha = 0.95$ ,  $\frac{\alpha}{2} = 0.025$

$$Z_{\frac{\alpha}{2}} = Z_{0.025} = 1.96$$

$$\bar{x} \pm Z_{\frac{\alpha}{2}} \frac{s}{\sqrt{n}} = 16.33 \pm 1.96 \frac{4.29}{\sqrt{36}} = 16.33 \pm 1.4$$

$$\rightarrow (14.93, 17.73)$$

(2)  $1-\alpha = 0.9$ ,  $\frac{\alpha}{2} = 0.05$

$$Z_{\frac{\alpha}{2}} = Z_{0.05} = 1.645$$

$$\bar{x} \pm Z_{\frac{\alpha}{2}} \frac{s}{\sqrt{n}} = 16.33 \pm 1.645 \frac{4.29}{\sqrt{36}} = 16.33 \pm 1.18$$

$$\rightarrow (15.15, 17.51)$$

例 6.9

(1) M點估計為  $\bar{x} = 15291.67$

(2)  $1-\alpha = 0.9$ ,  $\frac{\alpha}{2} = 0.05$

$$\text{自由度} = n-1 = 12-1 = 11, t_{0.05}(11) = 1.796$$

$$\bar{x} \pm t_{\frac{\alpha}{2}}(n-1) \frac{s}{\sqrt{n}} = 15291.67 \pm 1.796 \frac{197.52}{\sqrt{12}}$$

$$= 15291.67 \pm 102.41$$

$$= (15189.26, 15394.08)$$

(3)  $15394.08 - 15189.26 = 204.82$

例 6.19

$$1-\alpha = 0.95, Z_{\frac{\alpha}{2}} = Z_{0.025} = 1.96$$

$$n = \left( \frac{Z_{\frac{\alpha}{2}} s}{e} \right)^2 = \left( \frac{1.96 \times 0.05}{0.01} \right)^2 = 96.04$$

$$n = 97, 97 - 35 = 62$$