

例 6.10

$$n_1 = 250 \quad \bar{x} = 14.5 \quad s_1 = 3.5$$

$$n_2 = 180 \quad \bar{y} = 20.8 \quad s_2 = 3.8$$

(1)

$$\text{実估計} = \bar{x} - \bar{y} = 14.5 - 20.8 = -6.3$$

(2)

$$\begin{aligned} & (\bar{x} - \bar{y}) \pm z_{\frac{\alpha}{2}} \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}} \quad 1 - \alpha = 0.98 \quad \frac{\alpha}{2} = 0.01 \quad Z_{0.01} = 2.327 \\ & = -6.3 \pm 2.327 \sqrt{\frac{(3.5)^2}{250} + \frac{(3.8)^2}{180}} \\ & = -6.3 \pm 0.84 \quad (-7.14, -5.46) \end{aligned}$$

例 6.11

$$n_1 = 12 \quad \bar{x} = 36 \quad s_1 = 5 \quad 1 - \alpha = 0.9 \quad \frac{\alpha}{2} = 0.05$$

$$n_2 = 15 \quad \bar{y} = 32 \quad s_2 = 7$$

$$(\bar{x} - \bar{y}) \pm t_{\frac{\alpha}{2}} (n_1 + n_2 - 2) \sqrt{\hat{s}_p^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}$$

$$t_{0.05}(25) = 1.708$$

$$s_p^2 = (12-1)s_1^2 + (15-1)s_2^2 / 25 = 38.44$$

$$(4 \pm 1.708 \sqrt{38.44 \left(\frac{1}{12} + \frac{1}{15} \right)})$$

$$= 4 \pm 4.10 \quad (-0.1, 8.1)$$