例 6.11

解: 大小公司母体服从常态分配.

$n_1 = 12$, $\bar{x} = 36$, $S_1 = 5$, $n_2 = 15$, $\bar{y} = 32$, $S_2 = 7$, $1-\alpha = 0.90$.

$\frac{\alpha}{2} = 0.05$, $t_{\frac{\alpha}{2}}(n_1+n_2-2) = t_{0.05}(25) = 1.708$.

$$S_p^2 = \frac{(n_1-1)s_1^2 + (n_2-1)s_2^2}{n_1+n_2-2} = \frac{(12-1)5^2 + (15-1)7^2}{12+15-2}$$

$$= \frac{961}{25} = 38.44.$$

∴ $\mu_1 - \mu_2$ 之 90% 信赖区间 $(\bar{x}-\bar{y}) \pm t_{\frac{\alpha}{2}}(n_1+n_2-2)\sqrt{S_p^2(\frac{1}{n_1}+\frac{1}{n_2})}$

$$= (36-32) \pm 1.708\sqrt{38.44(\frac{1}{12}+\frac{1}{15})}$$

$$= 4 \pm 4.10.$$

∴ 休假天数介于 $-0.10 \sim 8.10$ 天之间.