6.10.

μ_1 = 有装有系电视台一週閱读時間

μ_2 = 沒有装有系电视一週閱读時間

$(\bar{x}-\bar{y})$ 常態分佈： $(\bar{x}-\bar{y}) \sim N(\mu_1-\mu_2, \frac{\sigma_1^2}{n_1}+\frac{\sigma_2^2}{n_2})$.

(1) $\bar{x}-\bar{y} = 14.5 - 20.8 = -6.3$ hr

(2) $(\bar{x}-\bar{y}) - z_{\frac{\alpha}{2}}\sqrt{\frac{s_1^2}{n_1}+\frac{s_2^2}{n_2}}, (\bar{x}-\bar{y}) + z_{\frac{\alpha}{2}}\sqrt{\frac{s_1^2}{n_1}+\frac{s_2^2}{n_2}}$

$1-\alpha = 0.98$, $\frac{\alpha}{2} = 0.01$, $z_{\frac{\alpha}{2}} = z_{0.01} = 2.327$

$(\bar{x}-\bar{y}) \pm z_{\frac{\alpha}{2}}\sqrt{\frac{s_1^2}{n_1}+\frac{s_2^2}{n_2}}$

$= (14.5-20.8) \pm 2.327\sqrt{\frac{(7.0)^2}{250}+\frac{(3.8)^2}{150}}$

$= (-6.3) \pm 0.84$

6.11.

μ_1 大公司每年平均休假天数

μ_2 小公司每年平均休假天数

$\mu_1 - \mu_2$ 區間估計.

$(\bar{x}-\bar{y}) \pm t_{\frac{\alpha}{2}}(n_1+n_2-2)\sqrt{s_p^2(\frac{1}{n_1}+\frac{1}{n_2})}$

$1-\alpha = 0.9$ $\frac{\alpha}{2} = 0.05$ $t_{\frac{\alpha}{2}}(n_1+n_2-2) = t_{0.05}(25) = 1.708$

$s_p^2 = \frac{(n_1-1)s_1^2+(n_2-1)s_2^2}{n_1+n_2-2}$

$= \frac{(12-1)5^2+(16-1)7^2}{12+15-2}$

$= \frac{961}{25}$

$= 38.44$

$\therefore (\bar{x}-\bar{y}) \pm t_{\frac{\alpha}{2}}(n_1+n_2-2)\sqrt{s_p^2(\frac{1}{n_1}+\frac{1}{n_2})}$

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

$= 4 \pm 4.10$

$\therefore (-0.10, 8.10)$.