6.10 $n_1 = 250$ $\mu_1 = 14.5$ $S_1 = 3.5$

$n_2 = 180$ $\mu_2 = 20.8$ $S_2 = 3.8$ 大樣本σ已知

(1) 点推定量 $\mu_1 - \mu_2 = \bar{X} - \bar{Y} = 14.5 - 20.8 = -6.3$

(2) $1 - \alpha = 0.98$

$\alpha = 0.02$

$\frac{\alpha}{2} = 0.01$

$z_{\frac{\alpha}{2}} = z_{0.01} = 2.33$

$(\bar{X} - \bar{Y}) \sim N(\mu_1 - \mu_2, \frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2})$

$\Rightarrow \boxed{(\bar{X} - \bar{Y}) \pm z_{\frac{\alpha}{2}} \sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}}} = -6.3 \pm 2.33 \sqrt{\frac{3.5^2}{250} + \frac{3.8^2}{180}}$

$= -6.3 \pm 2.33 \sqrt{0.049 + 0.08} = -6.3 \pm 0.839$

$= (-7.139, -5.461)$