

二.

$$(1) \sigma=3, 1-\alpha=0.95, \alpha=0.05, \frac{\alpha}{2}=0.025, z_{\frac{\alpha}{2}}=z_{0.025}=1.96, e=0.05$$

$$n = \left(\frac{z_{\frac{\alpha}{2}} \sigma}{e} \right)^2 = \left(\frac{1.96 \times 3}{0.05} \right)^2 = 138.3 \div 139 \text{ 取 } n=139$$

$$(2) \sigma=0.2, 1-\alpha=0.9, \alpha=0.1, \frac{\alpha}{2}=0.05, z_{\frac{\alpha}{2}}=z_{0.05}=1.645, e=0.03$$

$$n = \left(\frac{z_{\frac{\alpha}{2}} \sigma}{e} \right)^2 = \left(\frac{1.645 \times 0.2}{0.03} \right)^2 = 120.27 \div 121 \text{ 取 } n=121$$

$$(3) \sigma=0.05, 1-\alpha=0.99, e=0.02$$

$$n = \left(\frac{0.05}{0.02} \right)^2 \times 2.326^2 = 33.8 \div 34 \text{ 取 } n=34$$

$$\star 1250 \pm z_{0.025} \sqrt{\frac{140^2}{120}} = 1250 \pm 25.05 \Rightarrow (1224.95, 1275.05)$$

十.

$$(1) \bar{x}_1 - \mu_2 \text{ 之点估计值} = \bar{x} - \bar{y} = 85 - 78 = 7$$

$$(2) 1-\alpha=0.9, \frac{\alpha}{2}=0.05, z_{0.05}=1.645$$

$\mu_1 - \mu_2$ 之 90% 信赖区间:

$$(\bar{x} - \bar{y}) \pm z_{\frac{\alpha}{2}} \sqrt{\frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2}} = (85 - 78) \pm 1.645 \sqrt{\frac{154}{50} + \frac{146}{40}}$$

$$= 7 \pm 1.645 \times 2.59 = 7 \pm 4.26 \text{ 即 } (2.74, 11.26)$$