

$$V = \frac{\left(\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}\right)^2}{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}$$

$$n_1 = 9 \quad \bar{x} = 1.67 \quad s_1 = 1.27$$

$$n_2 = 9 \quad \bar{y} = 1.78 \quad s_2 = 2.15$$

$$V = \frac{\left(\frac{1.27^2}{9} + \frac{2.15^2}{9}\right)^2}{\frac{1.27^2}{9} + \frac{2.15^2}{9}} = 10.96 \approx 11$$

$$\begin{aligned} \bar{x} - \bar{y} \pm t_{\alpha/2} (V) \sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}} &= (1.67 - 1.78) \pm t_{0.025}(11) \sqrt{\frac{1.27^2}{9} + \frac{2.15^2}{9}} \\ &= -0.89 \pm 2.201 \times 1.77 \\ &= -0.89 \pm 16.75 \end{aligned}$$

$$3. n = 10 \quad \bar{x} = 13.63 \quad s = 1.05 \quad n-1 = 9$$

$$1-\alpha = 0.98 \quad \frac{\alpha}{2} = 0.01$$

$$\bar{x} \pm t_{\alpha/2} (n-1) \frac{s}{\sqrt{n}} = 13.63 \pm t_{0.01}(9) \frac{1.05}{\sqrt{10}}$$

$$= 13.63 \pm 2.821 \times 1.91$$

$$= 13.63 \pm 5.39$$

$$= (8.24, 19.02)$$

$$4. (1) n = 1200, \hat{p} = 0.33 \quad 1-\alpha = 0.98$$

$$0.33 \pm z_{\alpha/2} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$$

$$= 0.33 \pm 2.327 \times \sqrt{\frac{0.33 \times 0.67}{1200}} = 0.33 \pm 0.3$$

$$= (0.3, 0.36)$$

$$(2) n = 820 \quad X = 650 \quad \hat{p} = \frac{650}{820} = 0.79$$

$$1-\alpha = 0.95 \quad \frac{\alpha}{2} = 0.025$$

$$0.79 \pm 1.96 \times \sqrt{\frac{0.79 \times 0.21}{820}}$$

$$= 0.79 \pm 1.96 \times 0.014$$

$$= 0.79 \pm 0.03$$

$$= (0.76, 0.82)$$

14. cp.

$$n = 15 \quad \bar{x} = 1.73 \quad s = 0.8 \quad 1-\alpha = 0.95 \quad t_{\alpha/2} (n-1) = t_{0.025}(14) = 2.145$$

$$1.73 \pm t_{0.025}(14) \frac{s}{\sqrt{n}} = 1.73 \pm 2.145 \times \frac{0.8}{\sqrt{15}}$$

$$= 1.73 \pm 0.44$$

$$= (1.29, 2.17)$$

$$1.73 \pm t_{0.10}(14) \frac{s}{\sqrt{n}}$$

$$= 1.73 \pm 1.345 \frac{0.8}{\sqrt{15}}$$

$$= 1.73 \pm 0.28$$

$$= (1.45, 2.01)$$