

3.

$$n=10 \quad \bar{x} = 13.63 \quad s = 6.05 \quad n-1=9$$

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

$$\bar{x} \pm t_{\frac{\alpha}{2}}(n-1) \frac{s}{\sqrt{n}} = 13.63 \pm t_{0.01}(9) \frac{6.05}{\sqrt{10}}$$

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

$$= 13.63 \pm 5.39$$

$$(8.24, 19.02)$$

4.

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

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

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

$$= 0.33 \pm 0.3$$

$$\Rightarrow (0.30, 0.36)$$

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

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

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

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

$$= 0.79 \pm 0.03$$

$$= (0.76, 0.82)$$

14.

(1)

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

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

$$= 1.73 \pm 0.44$$

$$= (1.29, 2.17)$$

$$1.73 \pm t_{0.10}(14) \frac{0.8}{\sqrt{15}}$$

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

$$= 1.73 \pm 0.28$$

$$= (1.45, 2.01)$$