

3. $n=10$ $\bar{x}=13.63$
 $S=6.05$ $n-1=9$
 $1-\alpha=0.98$ $\frac{\alpha}{2}=0.01$

$$\bar{x} \pm t_{\frac{\alpha}{2}}(n-1) \frac{S}{\sqrt{n}}$$

$$= 13.63 \pm t_{0.01}(9) \frac{6.05}{\sqrt{10}}$$

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

$$= 13.63 \pm 5.39$$

$$= [9.24, 19.02]$$

4.

(1) $n=1200$
 $p=0.33$
 $1-\alpha=0.98$
 $\frac{\alpha}{2}=0.01$

$$0.33 \pm Z_{0.01} \sqrt{\frac{0.33 \times 0.67}{1200}}$$

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

$$= 0.33 \pm 0.03$$

$$= 0.3 \text{ or } 0.36$$

$= [0.3, 0.36]$

(2)
 $n=820$
 $\bar{x}=650$
 $1-\alpha=0.95$
 $\frac{\alpha}{2}=0.025$

$$\hat{p} = \frac{650}{820} = 0.79$$

$$0.79 \pm Z_{0.025} \sqrt{\frac{0.79 \times 0.21}{820}}$$

$$= 0.79 \pm 1.96 \times 0.04$$

$$= 0.79 \pm 0.08$$

$$= [0.71, 0.87]$$

14.

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

$$1.73 \pm 2.145 \frac{0.8}{\sqrt{15}}$$

$$= 1.73 \pm 0.44$$

$$= (2.17, 1.29)$$

(2) $1-\alpha=0.8$ $\alpha=0.1$

$$1.73 \pm t_{0.1}(14) \frac{0.8}{\sqrt{15}}$$

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

$$= 1.73 \pm 0.28$$

$$= [1.45, 2.01]$$