9 (1) $S = \sqrt{\frac{\Sigma(x-\bar{x})^2}{n-1}}$

3 $n=14 \quad \bar{x}=13.63 \quad S=6.05$

$n-1=9 \quad 1-\alpha=0.98 \quad \frac{\alpha}{2}=0.01$

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

$= 13.63 \pm 2.821 \times 1.91$

$= 13.63 \pm 6.39$

$= (8.24,\ 19.02)$

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

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

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

$= 0.33 \pm 0.03$

$= (0.30,\ 0.36)$

(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) $n=16, \quad \bar{x}=1.73, \quad S=0.8$

$1-\alpha=0.95. \quad t_{\frac{\alpha}{2}}(n-1)$

$= t_{0.025}(14) = 2.145$

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

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

$= 1.73 \pm 0.44$

$= (1.29,\ 2.17)$

(2)

$1.73 \pm t_{0.16}(14)\frac{0.8}{\sqrt{15}}$

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

$= 1.73 \pm 0.28$

$= (1.45,\ 2.01)$