$t_{0.025}(10) = 2.228$ #

3.

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

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

$= 13.63 \pm 2.821 \times 1.91$

$= 13.63 \pm 5.39$

$(8.24 , 19.02)$ #

4.

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

$0.33 \pm z_{\frac{\alpha}{2}}\sqrt{\frac{\hat{p}(1-\hat{p})}{n}} = 0.33 \pm 2.327 \times \sqrt{\frac{0.33 \times 0.67}{1200}} = 0.33 \pm 0.3 = (0.30 , 0.36)$ #

(2) $n = 820$, $x = 650$, $\hat{p} = \frac{650}{820} = 0.79$, $1-\alpha = 0.95$, $\frac{\alpha}{2} = 0.025$

$0.79 \pm 1.96 \times \sqrt{\frac{0.79 \times 0.21}{820}} = 0.79 \pm 1.96 \times 0.014$

$= 0.79 \pm 0.03$

$= (0.76 , 0.82)$ #

14.

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

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

$= 1.73 \pm 0.44$

$= (1.29 , 2.17)$ #

(2) $1.73 \pm t_{0.10}(14)\frac{0.8}{\sqrt{15}} = 1.73 \pm 1.345\frac{0.8}{\sqrt{15}}$

$= 1.73 \pm 0.28$

$= (1.45 , 2.01)$ #