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ex 3.

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

$$\bar{x} \pm t_{\frac{\alpha}{2}}(n-1) \frac{s}{\sqrt{n}} = 13.63 \pm t_{0.01}(9) \frac{6.05}{\sqrt{10}} = 13.63 \pm 2.821 \times 1.91 = 13.63 \pm 5.39$$

$$\underline{(8.24, 19.02)}$$

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ex 4.

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

$$0.33 \pm z_{\frac{\alpha}{2}} \sqrt{\frac{\hat{p}(1-\hat{p})}{n}} = 0.33 \pm \sqrt{\frac{0.33 \times 0.67}{1200}} = 0.33 \pm 0.014$$

$$\underline{(0.316, 0.344)}$$

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

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

$$= 0.79 \pm 0.03$$

$$\underline{(0.76, 0.82)}$$