

pg 360

(123) Data:

$$\bar{X} = 20$$

$$n = 36$$

$$s = 3$$

$$95\% C.I. \Rightarrow \alpha = .05$$

$$d.f. = 36 - 1 = 35$$

we have $\alpha/2 = .025$

$$d.f. = 35$$

$$\text{so } t_{\alpha/2} = 2.030$$

$$\text{so } \bar{X} \pm t_{\alpha/2} s/\sqrt{n}$$

$$\Rightarrow 20 \pm 2.030 \left(\frac{3}{\sqrt{36}} \right)$$

$$\Rightarrow \boxed{20 \pm 1.015}$$

(125) Data:

$$\bar{X} = 30$$

$$n = 25$$

$$s = 4$$

$$90\% C.I.$$

we have $\alpha = .10 \Rightarrow \alpha/2 = .05$

$$d.f. = n - 1 = 25 - 1 = 24$$

$$\text{so } t_{\alpha/2} = 1.711$$

$$\text{so } 30 \pm (1.711) \left(\frac{4}{\sqrt{25}} \right)$$

$$\Rightarrow \boxed{30 \pm 1.3688}$$

(127) Data

$$\bar{X} = 50$$

$$n = 16$$

$$s = 5$$

$$99\% C.I.$$

we have

$$\alpha = .01 \Rightarrow \alpha/2 = .005$$

$$d.f. = 16 - 1 = 15$$

$$\text{so } t_{\alpha/2} = 2.947$$

$$\text{so } 50 \pm (2.947) \left(\frac{5}{\sqrt{16}} \right)$$

$$\Rightarrow \boxed{50 \pm 3.684}$$

(131) @ given

$$n=10$$

$$\bar{x}=2.33$$

$$s=2.002$$

95% C.I.

we have
 $\alpha=.05 \rightarrow \alpha/2=.025$

$$d.f. = 10-1=9$$

$$\Rightarrow t_{\alpha/2} = 2.262$$

$$\text{So } 2.33 \pm (2.262) \left(\frac{2.002}{\sqrt{10}} \right)$$

$$\Rightarrow \boxed{2.33 \pm 1.432}$$

(133)

@ $n=42$

$$\bar{x}=1261.6$$

$$s=117.6$$

95% C.I.

$$\alpha=.05 \Rightarrow \alpha/2=.025 \checkmark$$

$$d.f. = 42-1=41 \checkmark$$

$$\text{So } t_{\alpha/2} = 2.020$$

$$\text{So } 1261.6 \pm (2.020) \left(\frac{117.6}{\sqrt{42}} \right)$$

$$\Rightarrow \boxed{1261.6 \pm 36.655}$$

(134) $n=50$

$$\bar{x}=12.04$$

$$s=1.03$$

90%

$$\alpha=.10 \Rightarrow \alpha/2=.05 \checkmark$$

$$d.f. = 50-1=49 \checkmark$$

$$\text{So } t_{\alpha/2} = 1.677$$

$$\text{So } 12.04 \pm (1.677) \left(\frac{1.03}{\sqrt{50}} \right)$$

$$\Rightarrow \boxed{12.04 \pm .244}$$

pg 350 sec 8.2

pg 3hree

(84d) given $\sigma = 4.1$
 $E = 1.55$

95% C.I. $\Rightarrow z_{\alpha/2} = 2.575$

Find n

$$n = \left(\frac{z_{\alpha/2} \sigma}{E} \right)^2$$

$$= \left(\frac{(2.575)(4.1)}{1.55} \right)^2$$

$$= 46.39 \Rightarrow \text{use } \boxed{n = 47}$$

(85d) given $\sigma = 2.1$

$$E = .5$$

95% C.I. $\Rightarrow z_{\alpha/2} = 1.96$

Find n :

$$n = \left(\frac{(1.96)(2.1)}{(.5)} \right)^2$$

$$= 67.77 \Rightarrow \text{use } \boxed{n = 68}$$

(89c) given $\sigma = .5$

$$E = .1$$

95% C.I.

Find n $\Rightarrow z = 1.96$

$$n = \left(\frac{(1.96)(.5)}{.1} \right)^2$$

$$= 96.04 \Rightarrow \text{use } \boxed{n = 97}$$

Sec 12.1(b)

pg 40w

(49) given: $n=1000$

$$\hat{p} = .32 \Rightarrow \hat{q} = 1 - \hat{p} = 1 - .32 = .68$$

$$95\% \text{ C.I.} \Rightarrow z_{\alpha/2} = 1.96$$

$$\hat{p} \pm z_{\alpha/2} \sqrt{\frac{\hat{p}\hat{q}}{n}}$$

$$\Rightarrow .32 \pm (1.96) \sqrt{\frac{(.32)(.68)}{1000}}$$

$$\Rightarrow \boxed{.32 \pm .029}$$

(51)

$$n=500$$

$$x=38 \Rightarrow \hat{p} = \frac{x}{n} = \frac{38}{500} = .076$$

$$\hat{q} = 1 - \hat{p} = 1 - .076 = .924$$

95% C.I.

$$\Rightarrow z_{\alpha/2} = 1.96$$

$$\hat{p} \pm z_{\alpha/2} \sqrt{\frac{\hat{p}\hat{q}}{n}}$$

$$\Rightarrow (.076) \pm (1.96) \sqrt{\frac{(.076)(.924)}{500}}$$

$$\Rightarrow \boxed{.076 \pm .023}$$

(52)

$$n=1000$$

$$\hat{p} = .38 \Rightarrow \hat{q} = 1 - .38 = .62$$

$$95\% \text{ C.I.} \Rightarrow z_{\alpha/2} = 1.96$$

$$\hat{p} \pm z_{\alpha/2} \sqrt{\frac{\hat{p}\hat{q}}{n}}$$

$$\Rightarrow .38 \pm (1.96) \sqrt{\frac{(.38)(.62)}{1000}}$$

$$\Rightarrow \boxed{.38 \pm .015}$$