

Work for Chapter 6 Stations Review

Name: Key

1 $n=81$ $\bar{x}=4.6$ $S=15.9$

$C=.95$ $d.f.=80$ $t_c=1.990$

$E=1.990\left(\frac{15.9}{\sqrt{81}}\right)=3.5$

$4.6-3.5 < \mu < 4.6+3.5$

$1.1 < \mu < 8.1$

With 95% confidence, we can say the pop. mean incubation period for SARS is between 1.1 days and 8.1 days.

2 $n=15$ $\bar{x}=9.1$ $S=1.6$

a) t -distribution because we are calculating the sample mean and s.d.

b) $d.f.=14$ $t_c=2.145$ $E=2.145\left(\frac{1.6}{\sqrt{15}}\right)$
 $C=.95$ $E=.9$

$9.1-.9 < \mu < 9.1+.9$

$8.2 < \mu < 10.0$

With 95% confidence, we can say the pop. mean time adults spend reading the newspaper is between 8.2 and 10.0 minutes.

3 $n=100$

$C=.95$ (34.5 47.2)

a) $\bar{x} = \frac{34.5+47.2}{2} = 40.85$

b) $48.85-34.5 = 6.35$

4 $E=0.1$ $\sigma=.25$

$\frac{1-.99}{2} = \frac{.01}{2} = .0050$ $Z_c=2.575$

$n = \left(\frac{2.575(.25)}{0.1}\right)^2 = 41.44...$

$n=42$

5 $C=.90$ $\frac{1-.90}{2} = \frac{.1}{2} = .0500$

$Z_c=1.645$ $\hat{p} = \frac{599}{1016} = .590$

$n=1016$

$\hat{q} = 1-.590 = .410$

$E = 1.645 \sqrt{\frac{.590(.410)}{1016}} = .025$

$.590-.025 < p < .590+.025$

$.565 < p < .615$

With 90% confidence, we can say the pop. prop. for pet owners in Ill. is between 56.5% and 61.5%.

6 $C=.95$ $E=.03$ $\frac{1-.95}{2} = \frac{.05}{2} = .0250$

a) $n = (.5)(.5) \left(\frac{1.96}{.03}\right)^2 = 1067.111...$ $Z_c=1.96$

$n=1068$

b) $n = .19(.81) \left(\frac{1.96}{.03}\right)^2 = 656.9...$

$n=657$

$$7 \quad n = 1383 \quad \hat{p} = \frac{1079}{1383} = .780$$

$$\hat{q} = 1 - .780 = .220$$

$$\frac{1-.90}{2} = \frac{.10}{2} = .0500$$

$$z_c = 1.645 \quad E = 1.645 \sqrt{\frac{.78(.22)}{1383}}$$

$$E = 0.018$$

$$.78 - .018 < p < .78 + .018$$

$$.762 < p < .798$$

With 90% confidence, we can say the pop. prop. of Kansas adults in favor of increasing state funding for research on wind technology is between 76.2% and 79.8%

$$8 \quad \hat{p} = .27 \quad \hat{q} = .73$$

$$\frac{1-.99}{2} = \frac{.01}{2} = .0050 \quad E = .04$$

$$z_c = 2.575$$

$$n = (.27)(.73) \left(\frac{2.575}{.04} \right)^2$$

$$n = 816.8 \dots$$

$$n = 817$$

$$9 \quad n = 7000 \quad \hat{p} = .63 \quad \hat{q} = .37$$

$$\frac{1-.95}{2} = \frac{.05}{2} = .0250$$

$$z = 1.96 \quad E = 1.96 \sqrt{\frac{(.63)(.37)}{7000}}$$

$$E = .011$$

$$.63 - .011 < p < .63 + .011$$

$$.619 < p < .641$$

With 95% confidence, we can say that the pop. prop of women that change their nail polish once a week is between 61.9% and 64.1%

$$10 \quad n = 8 \quad \bar{x} = 35 \quad \sigma = 7.2$$

$$95\% \quad z_c = 1.96$$

$$E = 1.96 \cdot \frac{7.2}{\sqrt{8}} = 5.011$$

$$35 - 5.0 < \mu < 30 + 5.0$$

$$30 < \mu < 35$$

With 95% confidence, we can say that the population mean for commute time to work is between 30 and 35 minutes.