

Pg 675-676 57, 61, 63, 66, 67, 70

#57) $\frac{171}{880} = \hat{p} = .1943$ $\hat{q} = .8057$ $z^* = 1.96$ $E = 1.96 \sqrt{\frac{(.1943)(.8057)}{880}}$

$E = .0264$

$(.1683, .2205)$

with 95% confidence we can determine the population proportion will be between .168 and .2205 of all drivers that run ~~the~~ ran a red light

#61) $\hat{p} = \frac{390}{1191} = .327$ $\hat{q} = .673$ $z^* = 1.96$ $E = 1.96 \sqrt{\frac{(.327)(.673)}{1191}}$

$E = .0266$

$(.3004, .354)$

(b) $1236 - 1191 = 45$ $\frac{45}{1236} = .036$ or 3.6% \rightarrow small results reliable

(c) sermon length perception probably does vary listener/speaker if listeners think longer than our estimates would be too low.

#63) $\hat{p} = .81$ $\hat{q} = .19$ $E = 1.96 \sqrt{\frac{(.81)(.19)}{2372}}$ $E = .016$

NO-DATA not SRS - call in poll.

#66) $\hat{p} = .37$ if we take a different sample, we likely get a diff response

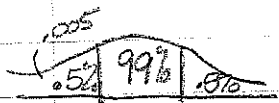
(b) $(.3401, .3999)$ (c) Error is .029 \Rightarrow about 3 percentage points

#67) $\bar{X} = 114.9$ $S = 9.3$ $n = 27$ $df = 26$

99% $\Rightarrow z = 2.575$

$t = 2.779$ * use T B/c don't know

anything about pop \rightarrow being normal



$E = 2.779 \left(\frac{9.3}{\sqrt{27}} \right) = 4.97$ 114.9 ± 4.97

(a) $(109.93, 119.87)$ with 99% confidence the population mean blood pressure will fall between 109.93 and 119.87

(b) Conditions \rightarrow ① SRS \checkmark

② normality ?

③ independence \checkmark

\rightarrow not established But ok if not extremely skewed/outliers

with small sample size use t, as long as not extremely skewed or outliers it should be reliable

#70) $\frac{221}{270} = \hat{p} = 0.819$ $z^* = 2.576$

$E = 2.576 \sqrt{\frac{(0.82)(.18)}{270}} = .06$

$.03 \leq 2.576 \left(\sqrt{\frac{(0.82)(.18)}{n}} \right)$ $E = z \sqrt{\frac{pq}{n}}$ $n \left(\frac{E}{z} \right)^2 = \frac{pq}{n}$

$.03 \leq \frac{.9897}{\sqrt{n}}$ $\sqrt{n} \geq \left(\frac{.9897}{.03} \right)$ $n = \frac{pq}{\left(\frac{E}{z} \right)^2}$

$n \geq 1088.3$

$n = 1089$ doctors