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

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

$E = .0261$

(.1682, .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) $\hat{p} = \frac{390}{1191} = .327$ $\hat{q} = .673$ +730min $z^* = 1.96$ $E = 1.96\left(\sqrt{\frac{(.327)(.673)}{1191}}\right)$

$E = .0266$

(.3004, .354)

(b) $1236 - 1191 = 45$ $\frac{45}{1236} = .036$ or 3.6% → 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 ⇒ 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 Bc dont know anything about pop → being normal

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

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

(b) Conditions → ① SRS ✓
② normality ?
③ independence ✓

not established But ok if not extremely skewed/outliers with small sample size use t. as long as not extremely skew or outliers it should be reliable

#70) $\frac{221}{270} = \hat{p} = .819$ $\quad z^* = 2.576$

$E = 2.576\sqrt{\frac{(.82)(.18)}{270}} = .06$

$.03 \leq 2.576\left(\sqrt{\frac{(.82)(.18)}{n}}\right)$ $\quad E = z\sqrt{\frac{pq}{n}}$ $\quad n = \left(\frac{E}{z}\right)^2 = \frac{pq}{n}$

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

$n \geq 1088.3$

$n = 1089$ doctors