

Sol-3 $n = 250$

As, $n > 30$, we will use z-test

a.) $H_0: P_0 \leq 60\%$

No. of people who owns a vehicle is less than or equal to 60%.

$H_1: P_0 > 60\%$

No. of people who owns a vehicle is more than 60%.

b.) $\alpha = 0.1$

C.I. = 0.9 $(-1.29, 1.29)$

$\hat{P} = 60\%$

$P_0 = \frac{170}{250} \times 100 = 68\% \text{ or } 0.68$

$q_0 = 1 - P_0 = 0.32$

z-test with proportion = $\frac{\hat{P} - P_0}{\sqrt{\frac{P_0 Q_0}{n}}}$

$$= \frac{0.6 - 0.68}{\sqrt{\frac{0.68 \times 0.32}{250}}}$$

$$= \frac{-0.08}{0.029}$$

$$\boxed{Z\text{-score} = -2.76}$$

As, Z-score value is not in the acceptance range.
 $Z\text{-score} < -1.29$.

Therefore, Null hypothesis is rejected.

Conclusion: No. of people who owns a vehicle is more than 60%