Assignment //

* A car company believes that the percentage of residents in city ABC that owns a vehicle is 60% or less. A sales manager disagrees with this. He conducts a hypothesis testing surveying 250 residents & found that 170 responded yes to owning a vehicle.

(a) State the Null & Alternate Hypothesis

(b) At 10% significance level, is there enough evidence to support the idea that vehicle ownership in city ABC is 60% or less?

⟹ 1) $H_0 : P_0 = 60\%$

$H_1 : P_0 < 60\%$

one tail test

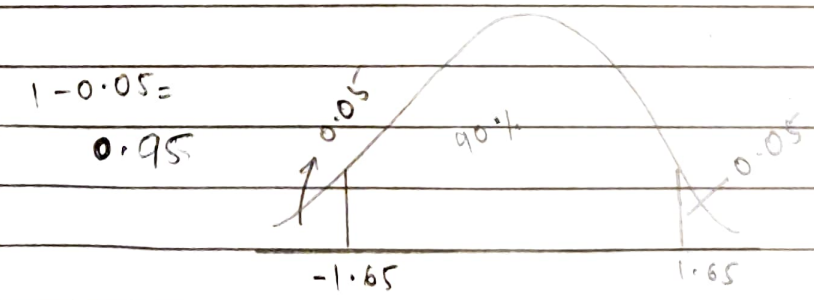
$n = 250 \; ; \; x = 170$

$\hat{p} \; \frac{x}{n} = \frac{170}{250} = 0.68$

$q_0 = 1 - P_0 = 1 - 0.60$

$= 0.40$ //

(2) $\alpha = 0.10$ C.I = 90%



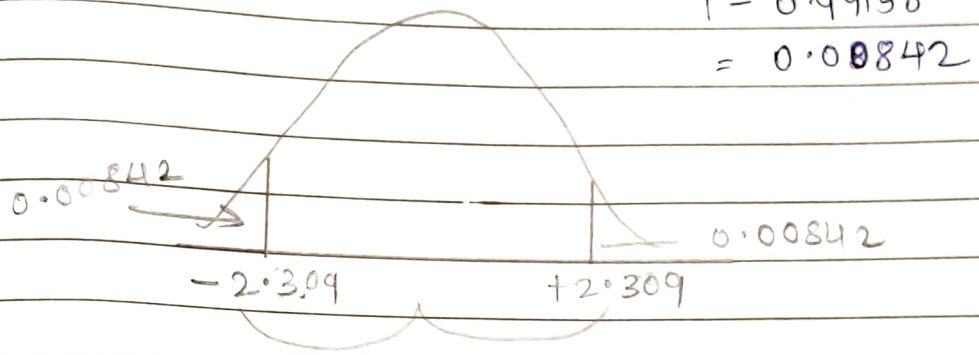
$$z \text{ test} = \frac{\hat{p} - P_0}{\sqrt{\frac{P_0 q_0}{n}}} = \frac{0.68 - 0.60}{\sqrt{\frac{0.60 \times 0.40}{250}}}$$

$= 2.309$

$2.309 > 1.65$

$\Rightarrow$ Reject the Null Hypothesis

P value



P value = $0.00842 + 0.00842$

$= 0.01684$

P value $<$ Significance value

$0.01684 < 0.10$

conclusion - we will Reject the Null Hypothesis.