P-value = 0.014 ⇒ maybe

Assignment

Ques 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 hypotheses testing surveying ~~a vehicle~~ 250 residents and found that 170 responded yes to owning vehicle.

(a) State the null & alternate hypotheses

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

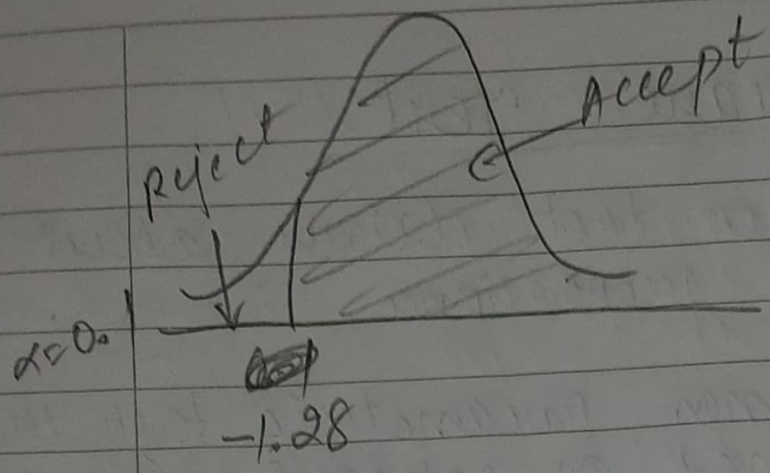
1) Null Hypothesis :- ~~[illegible]~~ $H_0 : p_0 \leq 60\%$
Alternate Hypothesis :- $H_1 : p_0 > 60\%$

$n = 250$
$x = 170$

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

$$q_0 = 1 - p_0 = 1 - 0.6 = 0.4$$

II) $\alpha = 0.1$ (One-tail test)



III) z-test with proportion

$$z\text{-test} = \frac{\hat{p} - p_0}{\sqrt{\frac{p_0 q_0}{n}}} = \frac{0.68 - 0.6}{\sqrt{\frac{0.6 \times 0.4}{250}}}$$

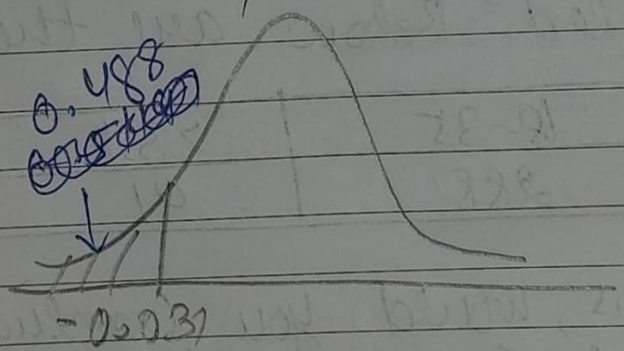
$$= 0.031$$

$$> -1.28$$

Accept

IV) Conclusion 0.031 [redacted] the Ho

Alt. method:- p-value



P-value > α
so, accept the null hypothesis