A car company believes that the Percentage of resident in city ABC that owns a vehicle is 60% or Less. A Salary manage disagree with this. He conducts a hypothesis testing surveying 250 residents and found that 170 responding 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 vechicle owner in city 60%.

$P_0 = 60\%, n = 250, x = 170, \alpha = 10\%$.

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

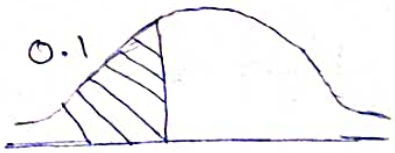
$H_1: P_0 > 60\%$ one tail, z-test

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

$$q_0 = 1 - P_0 = 1 - 0.6 = 0.4$$

2.) $\boxed{\alpha = 0.1}$

3.) Condition Boundary



-1.28

4.) Z-test with Proportion :-

$$z\text{-test} = \frac{\hat{P} - P_0}{\sqrt{\frac{P_0 q_0}{n}}}$$

$$= \frac{0.68 - 0.6}{\sqrt{\frac{0.6 \times 0.4}{250}}}$$

$$\boxed{Z\text{-test} = 2.582}$$

$2.582 > -1.28$

Accept the Null Hypothesis

The % to resident owns a vehicle is 60% (or) less.