

Cae Company Problem involving
2 Proportions.

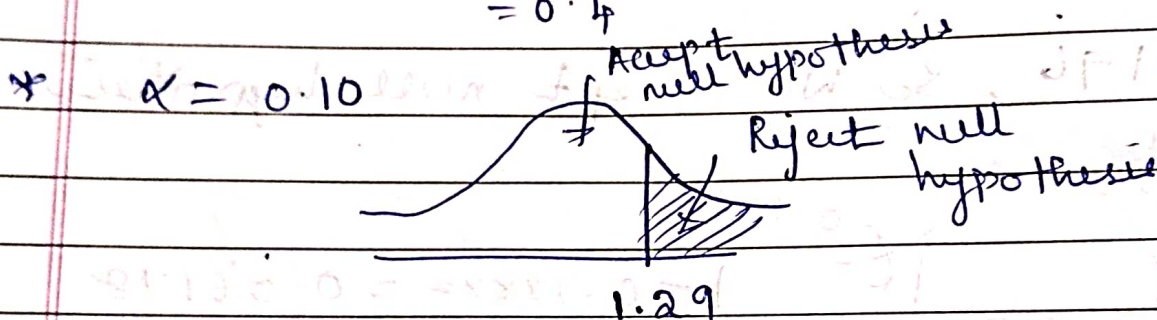
evidence to support the idea that
Vehicle ownership in city ABC is 60% or less?

$$[\text{true p-value} \Rightarrow 0.004]$$

Solution

$$\begin{aligned} H_0 &\Rightarrow P_0 \leq 60\% \\ H_1 &P_0 > 60\% \end{aligned} \quad \left. \begin{array}{l} \text{So one tail} \\ \hat{n} = 170 \quad n = 250 \end{array} \right\}$$

$$* \quad P_0 = 0.6 \quad q_0 = 1 - P_0 = 0.4 \quad \hat{p} = \frac{x}{n} = \frac{170}{250} = 0.68$$



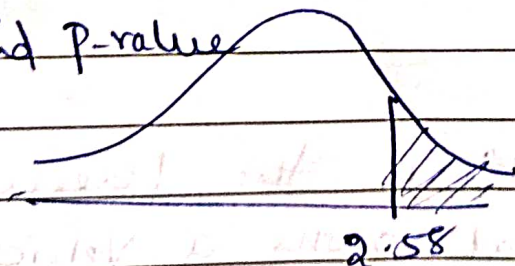
* Z-test

$$= \frac{\hat{p} - P_0}{\sqrt{P_0 q_0 / n}} = \frac{0.68 - 0.6}{\sqrt{\frac{0.6 \times 0.4}{250}}}$$

$$= \frac{0.08}{0.031} = 2.58 //$$

$2.58 > 1.29$ So reject null hypothesis

* Find P-value



$$\Rightarrow 1 - 0.9951 = 0.004 //$$

$$\text{p-value} < \alpha$$

$$0.004 < 0.10$$

So reject null hypothesis