09-07-2022

Assignment question =>

$\mu = 60$
$n = 250$
$x = 170$
C.I. = 10%.

1) Null hypothesis =>

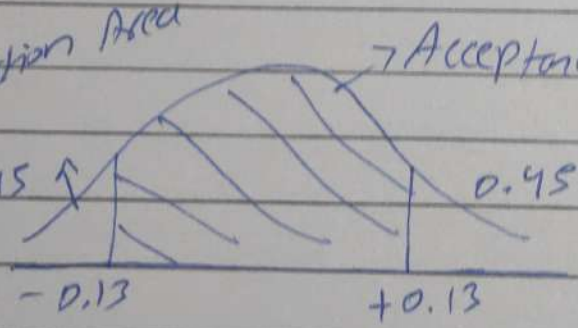
H_0 = Proportion = 60%.
H_1 = Proportion $\neq$ 60%.

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

$$q_0 = 1 - p_0$$
$$q_0 = 1 - 0.60 = 0.4$$

2) $\alpha = 0.9$ $\alpha = 1 - 0.10$
$\alpha = 0.9$

3)



$1 - 0.45 = 0.55$
from Z table = 0.13

22

z test with proportion =)

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

$$= \frac{0.68 - 0.60}{\sqrt{\frac{0.60 \times 0.4}{250}}}$$

$$= \frac{0.08}{\sqrt{\frac{0.24}{250}}}$$

$$= \frac{0.08}{\sqrt{0.00096}}$$

$$= \frac{0.08}{0.030983866676}$$

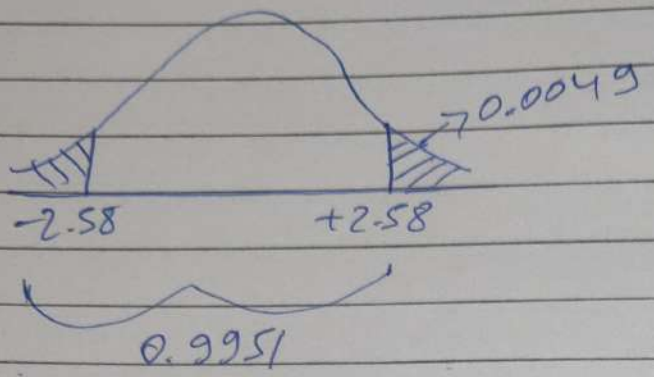
$$= 2.58$$

Conclusion =)

$2.58 > +0.13$ [Reject the null hypothesis]

ownership in city ABC is more than 60%.

P-Value =>



$= 1 - 0.9951$
$= 0.0049$

P-value = 0.0049 + 0.0049
= 0.0098

P-value < significance value, so, reject the null hypothesis.