2-PROPORTION Z-TEST

This test is used to compare proportions from 2 independent samples.

In s study done in Michigan, it was determined 38 (out of 62) poor children who attended pre-school needed social services later in life compared to 49 (out of 61) poor children who did not attend preschool.

Does this study provide significant evidence that preschool reduces the need for social services later in life?

P) IDENTIFY POPULATION PARAMETERS:

H) STATE HYPOTHESES:

A) VERIFY CONDITIONS REQUIRED FOR TEST:

a) Random

b) Normal Sampling Distributions

$n_1\hat{p}_1 =$ $n_2\hat{p}_2 =$

$n_1(1-\hat{p}_1) =$ $n_2(1-\hat{p}_2) =$

c) Independent

$N_1 > 10n_1$

$N_2 > 10n_2$

T) PERFORM TEST USING

a) **TABLE A:**

Calculate z-statistic and check Table:

$$\hat{p} = \frac{\textit{total number of successes in both samples}}{\textit{total number of observations in both samples}} =$$

$$z = \frac{\hat{p}_1 - \hat{p}_2}{\sqrt{\hat{p}(1-\hat{p})(\frac{1}{n_1} + \frac{1}{n_2})}} =$$

P-value = _____

b) CALCULATOR:

S) STATE CONCLUSION:

CONFIDENCE INTERVAL:

Construct a 95% confidence interval for the difference in proportions of people needing social services after attending preschool:

P) See above

A) See above

I) Construct Interval

a) Using Formula

$$CI = (\hat{p}_1 - \hat{p}_2) \pm z^* \sqrt{\frac{\hat{p}_1(1-\hat{p}_1)}{n_1} + \frac{\hat{p}_2(1-\hat{p}_2)}{n_2}}$$

b) Using Calculator

S) State Conclusion (Use *less* or *more*)