1- PROPORTION Z-TEST

This test is used to determine if a hypothesized population proportion (p) is reasonable based on a sample proportion ($\hat{p}$)

A potato-chip producer selects a random sample of 500 potatoes from a truck shipment and determines that 47 have blemishes.

At α = .05, is there evidence that more than 8% of the shipment's potatoes have blemishes?

P) IDENTIFY POPULATION PARAMETER:

H) STATE HYPOTHESES:

A) VERIFY CONDITIONS REQUIRED FOR TEST:

a) Random

b) Normal Sampling Distribution

c) Independent

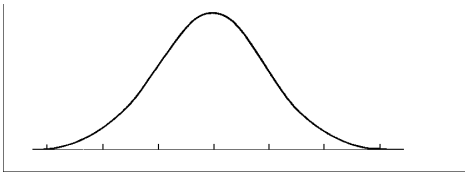
T) PERFORM TEST USING

a) TABLE A:

i) Calculate *z* test statistic

$$z = \frac{\hat{p} - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}} =$$

ii) Determine area under curve (*P*-value)



b) CALCULATOR:

S) STATE CONCLUSION:

CONFIDENCE INTERVAL (Use PAIS):

After checking for normal distribution [$n\,\hat{p} \geq 10$ and $n(1 - \hat{p}\ ) \geq 10$], a 90% confidence interval for the proportion of blemished potatoes in this truck is:

STAT⟶ TEST ⟶ 1-Prop Z Int = (.073, .115)

We are 90% confident that between 7.3% and 11.5% of potatoes in this shipment are blemished (which reinforces are conclusion from the hypothesis test since as few as 7.3% may actually be blemished).