

Instructions: Show all work to receive full credit. You should note any formulas used or calculator functions used, their inputs and outputs. I cannot grade work if I don't know where an answer came from. Be sure complete all parts of each questions, including requests for interpretation and explanations. Be as thorough as possible.

1. 1500 Americans were asked if they thought the country was headed in the right direction, and 45% of respondents in that poll responded "yes". What is the 95% confidence interval for this result?

PropZInt

$$X = .45 * 1500 = 675$$

$$n = 1500$$

$$C\text{level} : .95$$

$$(.42482, .47518)$$

2. 1500 Americans were asked if they thought the country was headed in the right direction and 45% of respondents in that poll responded "yes". We'd like to test if this is good evidence that fewer than half of all Americans think that the country is headed in the right direction.
- a. State the null and alternative hypotheses in correct notation.

$$H_0: p = .5$$

$$H_a: p < .5$$

- b. What is a Type I error in the context of this problem?

that half or more of population does think country headed in right direction but we reject H_0 and say it does not

- c. What is a Type II error in the context of this problem?

that less than half the population thinks the country is headed in the right direction but we are unable to support that claim and reject H_0