

HT's and CI's for One Proportion

CREDIT: The questions on this document were written by Erik Packard, PhD, Associate Professor of Mathematics at Colorado Mesa University.

- Problem 7

- Can we prove at the 1% significance level that the percentage of all credit card accounts in Nevada with balances over \$1000 after the last payment is over 40%?

	Nevada:
Number of accounts with \$1000+ balances after the last payment	512
Total number of accounts in the sample	1200

- A) Before collecting data, what is the chance of concluding the percentage is over 40% when it isn't?
- B) Before collecting data, what is the chance of not concluding the percentage is over 40% when it actually is?
- C) Give the critical values(s) (from the appropriate table).
- D) Give the value of the test statistic (from the data).
- E) Is the answer Yes or No?
- F) What is the p -value?
- G) Describe the meaning of the p -value in everyday terms.
- H) Give a 99% CI for the percentage of all credit card accounts from Nevada that had over \$1000 in balance after the last payment.
- I) Estimate how large a sample is needed to ensure the margin of error in a 99% CI is 3% if you trust the initial data?
- J) How large of a sample is needed to ensure the margin of error in a 99% CI is 3% if you don't have any data collected yet?

- Problem 8

- Can we prove at the 1% significance level that the percentage of all credit card accounts in Nevada that have over \$1000 in balances after the last payment is not 40%?

	Nevada:
Number of accounts with \$1000+ balances after the last payment	512
Total number of accounts in the sample	1200

- C) Give the critical values(s) (from the appropriate table).
- D) Give the value of the test statistic (from the data).
- E) Is the answer Yes or No?
- F) What is the p -value?