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1. Textbook 9.54 — Answer the following only.

   (a) Find a 95% Wald CI for p.

   (b) Find a 95% Agresti-Coull CI for p.

2. Textbook 10.58 — Answer the following only.

   (a) Test $H_0 : p = 0.60$ vs $H_a : p \neq 0.60$ at the $\alpha = 0.05$ significance level using a 3-step score test.

   (b) Find the $p-$value for the test.

(c) Find a 95% Wald CI for p.

(d) Find a 95% Agresti-Coull CI for p.

3. Consider the following two-way table which summarizes gender and job position (manager, non-manager) for 100 randomly selected employees at a large company.

	Male	Female
Manager	30	10
Non-Manager	30	30

A researcher wishes to test H_0 : no association between gender and position versus H_a : association between gender and position at the $\alpha = 0.01$ significance level.

(a) Find the test statistic and critical value, plot the rejection region, and state your decision and final conclusion.

(b) Approximate the $p-$value for the test using the chi-square table.

(c) Use the χ^2-Probability Applet at

http://www.stat.uiowa.edu/~mbognar/applets/chisq.html

to precisely determine the $p-$value for the test.

(d) Based upon the $p-$value, is there a significant association between gender and position? Why?

(e) At the $\alpha = 0.05$ significance level, is there a significant association between gender and position? Why?

4. Textbook 9.72

5. Textbook 10.68 — Answer the following only.

   (a) Test $H_0 : \sigma^2 = 36$ vs $H_a : \sigma^2 < 36$ at the $\alpha = 0.05$ significance level.

   (b) Find a 95% one-sided upper-bound CI for σ^2.