

Please write your student number here: _____

Ground rules:

- Do not write your name on the exam. If you're worried about losing the first page, write your student number on each page of the exam.
- If you use pages other than this exam to do your work, STAPLE them to the exam, clearly identify each question with a number, write your student number on those pages and hand them in.
- You can use your notes or books, but you may not communicate with other people about this exam or the material covered by it.
- In order to receive as much credit as possible, please show all of your work. Showing that you understand the question and know how to set up the solution correctly is more important than arriving at the exact answer.
- Feel free to use Excel or another program for your calculations, if necessary.
- **READ ALL QUESTIONS CAREFULLY!**
- Please be neat -- you can't get credit if I can't read your answers.
- To turn in the exam, please put it in my box in 208 Parrington Hall.
- Good luck!

- c. Teri also wants to know what proportion of women entrepreneurs financed their businesses using personal debt. Provide her with a range estimate. (5 points)
- d. Teri would like to know if we have enough evidence to say that women entrepreneurs have a significantly greater reliance on personal debt than do male entrepreneurs. Perform a hypothesis test so that you can answer her question. What assumptions do you need to make? (10 points)
- e. She'd also like an estimate of the difference in the use of personal debt for men and women entrepreneurs. Again use a range. (5 points)

- f. How strong is your evidence that there is a difference in the use of personal debt? What is the probability that you are wrong? (5 points)
- g. Teri would like to conduct another survey that would yield quality estimates of the proportion of both men and women entrepreneurs who use personal debt to finance their businesses. She'd like to be within 2 percentage points of the estimates. Based on the information provided in the current survey, tell her what size sample of each would she need. (You can assume that the response rate would be 100 percent if she were to conduct another survey.) (10 points)

- h. Teri thinks that entrepreneur's reliance on personal debt may indicate a lack of access to capital or credit to expand and support their businesses. Summarize your findings for Teri in a paragraph or two. Make sure to answer her fundamental question of whether women entrepreneurs rely more upon personal debt, discuss ALL your findings, and address her concern about a lack of access to credit. In addition, talk about why do you think you see the results you do and what else it would be helpful for Teri to know in order to answer her question more fully. (20 points)

2. Are web grocers more expensive than grocery stores that are not entirely web-based? While they do provide a great deal of convenience, are customers paying a high price for that convenience (not taking into account any delivery charges)? Here is a selection of similar brand name products taken from Albertson's (which has both a web and a traditional grocery store presence) and WebVan, which recently bought our HomeGrocer.com and only has a web presence. Ten brand-name products were selected randomly and then searched out on both stores' web sites.

Product Number	WebVan	Albertson's
1	3.99	2.99
2	5.99	3.69
3	3.69	3.29
4	1.49	1.39
5	3.99	4.19
6	2.09	2.49
7	0.79	0.79
8	1.69	1.79
9	1.39	1.69
10	0.99	0.99

- a. Conduct a hypothesis test to see if the stores charge different prices for their groceries. Use a .05 level of significance. What assumptions do you need to make? (10 points)
- b. Construct a 95 percent confidence interval for the range estimate for the difference in the prices at the two stores. What assumptions do you need to make? (10 points)

- c. Write a summary of your results for the non-technical web consumer. Offer an explanation for the results you have. (10 points)