

Show **all** of your work on this assignment and answer each question fully in the given context. Each individual part is worth 5 points and partial credit is awarded for close answers. Regardless of the total number of points on this homework, it will have the same weight as all other homeworks in terms of its impact on course grade. So, if a specific homework has 50 points and you lose 5, then your grade on that homework will be $45/50=90\%$. If there are 10 points on a homework and you lose 5, then your grade on that homework will be $5/10=50\%$. The average of those two homeworks would be $(90 + 50)/2 = 70$.

Please staple your assignment!

- **Chapter 1, Exercise 2 (page 13)**
- **Chapter 1, Exercise 3 (page 13)**
- **Chapter 1, Exercise 8 (page 24)**
- **Hockey game attendance.**

Caroline performs the following study to see if outside temperature has an effect on attendance at her college's hockey games. For each hockey game at her college, Caroline records the outside temperature and the attendance. Here are her results:

Day of Week		Temperature, deg. F	Attendance
Friday	12/14	35	840
Wednesday	12/19	20	560
Tuesday	1/ 8	-5	340
Friday	1/11	23	775
Wednesday	1/23	14	680
Saturday	2/ 2	30	950
Friday	2/ 8	28	950

1. Is this an experiment or observational study?
2. What type of variable is attendance?

Caroline analyzes her results and finds that outside temperature and attendance have a strong positive correlation (i.e., as one increases, the other also increases). She concludes that higher game day temperatures causes higher attendance at their college's hockey games.

1. Did she come to a proper conclusion for this study? Why or why not?
2. Look at the day of the week of the hockey games. What type of variable is this?
3. Rewrite the data table, adding a new column "School Night" (using the values "no" if the game is on a Friday or Saturday, and "yes" if the game is on any other day). How does Attendance relate to School Night?

- **Washer stretching.**

George works for a company that manufactures rubber washers. He randomly selects 1000 washers off the assembly line throughout two weeks for a study on the durability of these washers under stretching. To make sure that the washers are fit to be used in the real world, George must test the washers. Holding heat constant, George subjects each washer to one of

various methods of stretching. The washers are randomly assigned to be stretched under one of five different forces (low, medium-low, medium, medium-high, and high). After each test, George classifies a washer as either defective or non-defective.

1. Is this an experiment or observational study?
2. What type of variable is heat?
3. What type of variable is the amount of stretching?
4. What type of variable is response to the stretching method?
5. The 100 selected washers constitutes the sample. What is the population?
6. George analyzes the results and finds that the defect rate increases with the amount of stretching. Can George conclude that the amount of stretching causes a change in the defect rate of the washers? Why or why not?