Name:_____ Date:_____

AP Statistics Assignment #0 Exploring Data

1. Identify each study as being either observational or experimental:
    a. Subjects were randomly assigned to two groups, and one group was given an herb and the other group a placebo. After six months, the numbers of respiratory tract infections each group had were compared

    b. A researcher stood at a busy intersection to see if the colour of the automobile that a person drives is related to running red lights

    c. A researcher finds that people who are more hostile have higher total cholesterol levels than those who are less hostile

    d. Subjects are randomly assigned to four groups. Each group is placed on one of four special diets: low fat diet, high fish diet, a combination of low-fat diet and high fish diet, and a regular diet. After six months, the blood pressures of the groups are compared to see if diet has any effect on blood pressure

2. Researchers analyzed standardized test results and television viewing habits of 1700 children. They found that children who averaged more than two hours of television viewing per day when they were younger than 3 tended to score lower on measures of reading ability and short term memory. *(Seattle Times, July 6, 2005)*
    a. Is this an "Observation study" or "Experiment"?

    b. Is it reasonable to conclude that watching two or more hours of television is the cause of lower reading scores? Explain?

3. A study on children allergies led researchers to conclude that babies raised with two or more animals were about half as likely to have allergies by the time they turned six. (*San Luis Obispo Tribune*, August 28, 2002) . What are the potential confounding variables that illustrates why it is unreasonable to conclude that being raised with two or more animals is the cause of the observed lower allergy rate?

4. Observational studies in recent years have concluded that moderate drinking of alcohol (espescially red wine) is the cause of reduced risk of heart disease. What are some of the confounding variables that can prevent us from making this conclusion?

5. The amount of protein (in grams) for a variety of fast food sandwiches is reported here. Construct:
   i) a frequency distribution using 6 classes ii) A histogram with a relative frequency distribution
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23	30	20	27	44	26	35	20	29	29
25	15	18	27	19	22	12	26	34	15
27	35	26	43	35	14	24	12	23	31
40	35	38	57	22	42	24	21	27	33

6. State which graph: (Bar, Pie, or Line graph would be the best for each situation)

   a. The number of students enrolled at a local college for each year during the last five years

   b. The budget for the student activities department at a certain college for each year during the last five years

   c. The means of transportation the students use to get to school

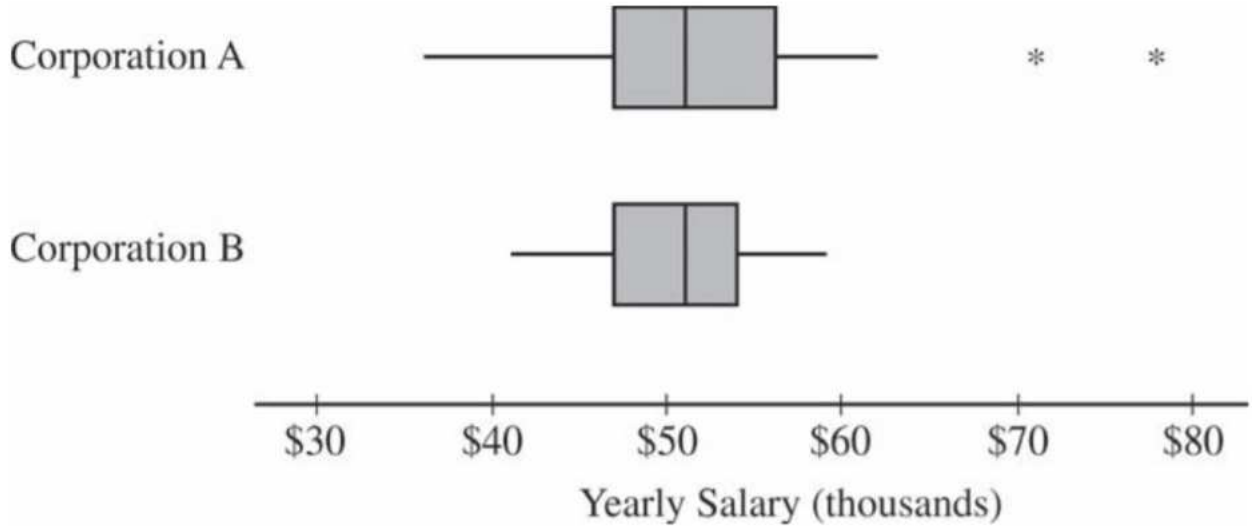
   d. The percentage of votes each of the four candidates received in the last election

   e. The record temperatures of a city for the last 30 years

   f. The frequency of each type of crime committed in a city during the year

Question7

Two large corporations, A and B, hire many new college graduates as accountants at entry-level positions. In 2009 the starting salary for an entry-level accountant position was $36,000 a year at both corporations. At each corporation, data were collected from 30 employees who were hired in 2009 as entry-level accountants and were still employed at the corporation five years later. The yearly salaries of the 60 employees in 2014 are summarized in the boxplots below.



(a) Write a few sentences comparing the distributions of the yearly salaries at the two corporations.

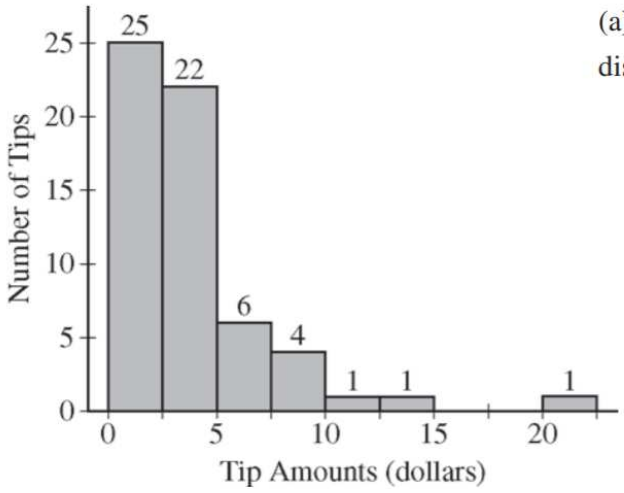
(b) Suppose both corporations offered you a job for $36,000 a year as an entry-level accountant.

(i) Based on the boxplots, give one reason why you might choose to accept the job at corporation A.

(ii) Based on the boxplots, give one reason why you might choose to accept the job at corporation B.

Question 8

Robin works as a server in a small restaurant, where she can earn a tip (extra money) from each customer she serves. The histogram below shows the distribution of her 60 tip amounts for one day of work.



(a) Write a few sentences to describe the distribution of tip amounts for the day shown.

(b) One of the tip amounts was $8. If the $8 tip had been $18, what effect would the increase have had on the following statistics? Justify your answers.

The mean:

The median: