1. The following histogram represents the number of hours that M.C. students spend studying in a typical week.

2.

a. Describe the general shape of this distribution.

b. Which would be greater for this data — the mean or the median? **Explain your answer.**

c. If someone asked you for the “average” amount that M.C. students study which would give a better representation of the majority of the students — the mean or the median? **Explain!**

d. What is the most frequently occurring study time in this data?
2. The following values represent the salaries of the 7 employees in your company (represented in $10,000s).

22  25  28  32  34  36  40

a. Determine the mean salary for your company.

b. Determine the median salary for your company.

c. Suppose the owner is criticized for paying low salaries, on average. In 2001 she gives a $10,000 raise to the person making $40,000 (who just happens to be her brother-in-law) and no raise to anyone else. Based on this scenario, what happens to the mean salary? What happens to the median salary? **Justify your answers!**

d. The owner declares that “the average salary increased significantly from the year 2000 to 2001.” Give a critique of this claim.
3. State at least three characteristics that describe any normal curve. (Give more than three for extra credit.)

1. Suppose the scores on a test are normally distributed with a mean of 75 and a standard deviation of 8.

   a. What percent of the student’s score are between 75 and 80.

   b. What percent of the student’s score are between 55 and 75.

   c. What percent of the student’s score are above 90.

   d. State a range that contains the “middle 95%” of the students’ score.
5. Consider the following paragraph from a newspaper article:

“A random telephone survey was recently conducted of residents of Ft. Wayne. Of the 900 people surveyed 20% said they favored increased food and medical benefits for low-income families. The margin of error for this poll is plus or minus 3.3%. The poll has a 95% confidence level”

a. Using the above information, what can we conclude about the percent of Ft. Wayne residents who favor increased benefits for low-income families?

b. Using the above information, show that the reported margin of error, m=3.3%, is in fact correct.

c. Suppose you wanted your poll to be accurate to within plus or minus 1%. Still using 95% confidence, how many people would you need to survey?

d. Are there any possible biases built into the survey process? (HINT: Think about the question being asked and about those who had a chance to respond to the survey.)