

Name: _____ MTH 117 CDA Test 1 October 16, 2007

This test consists of 9 problems. Do each problem in the space provided. If you need more paper, you may use the backs of the pages, but clearly indicate where the additional work can be found. You are allowed to use a calculator; but to get partial credit for incorrect answers, your reasoning must be clear. Explanations must be in **complete sentences**.

Problem	Max Points	Earned Points
1	12	
2	6	
3	6	
4	8	
5	8	
6	27	
7	18	
8	6	
9	9	
Total	100	

1. A New York Times poll asked 1000 residents of New York City “Do you think living in New York City is worth what it costs, or don’t you think so?” They reported (October 14, 2007) that 506 said “yes,” 429 said “no,” and 65 said they were “not sure” or refused to answer.

a. Is this an observational study or an experiment?

b. What is the population of this study?

c. Are the reported results statistics or parameters?

d. Is this data quantitative or qualitative?

2. According to the Clean Air Council, on average each American produces 56 tons of trash per year.

a. Which of the four levels of measurement (nominal, ordinal, interval, or ratio) best describes this data on which this conclusion was based.

b. Is the data set discrete or continuous?

3. In the early 1990s, automobile manufactures argued against strict fuel economy standards. They pointed to the fact that when large cars collide with small cars, the passengers of the small cars tend to suffer more severe injuries than the passengers of the large cars. They concluded that the roads would be safer if more cars were larger.

Can you think of an alternative conclusion supported by the same statistics?

4a. The great flu pandemic of 1918-1919 (which became known as Spanish Influenza because it received the greatest press coverage in Spain) is estimated to have killed between 50 to 100 million people worldwide! To verify this figure, would you conduct a retrospective, cross-sectional, or prospective study?

4b. Some critics of popular culture have argued that the rising popularity of social networking websites (like MySpace and Facebook) may damage our ability to form meaningful human relationships in the long term. To test these claims, would you design a retrospective, cross-sectional, or prospective study?

5. In a study to determine whether employees tend to be overworked, 100 local companies are selected at random and all of their employees are surveyed.

a. Does this sampling technique result in a random sample? Explain.

b. Does this sampling technique result in a simple random sample? Explain.

6. A statistics student keeps very careful records of how long she spends doing each homework assignment. Here are her times (in minutes) for the first five homework assignments:

25 38 33 67 45

Find the mean, median, mode, midrange, sample standard deviation, sample variance, and range of the data set. Also determine maximum and minimum “usual” values using the range rule of thumb.

Mean= _____

Median= _____

Mode= _____

Midrange= _____

Sample Standard Deviation= _____

Sample Variance= _____

Range= _____

Maximum Usual= _____

Minimum Usual= _____

8. Describe the complements of the following events:

A =No student gets a perfect score on the test.

\bar{A} =

B =At least one student fails the test.

\bar{B} =

9. A group of 24 children are taken out for ice cream cones. Some prefer sugar cones, and some prefer waffle cones. They are also allowed a choice of vanilla, chocolate, or strawberry ice cream. The table below summarizes their orders.

	Vanilla	Chocolate	Strawberry
Sugar Cone	5	8	3
Waffle Cone	3	4	1

One child is selected from the group at random.

a. What is the probability that he or she will have chocolate ice cream on a sugar cone?

b. What is the probability that she will NOT have chocolate ice cream on a sugar cone?

c. What is the probability that she will have either chocolate ice cream OR a sugar cone?