AMDM
Unit 3 Section A REVIEW

Name: _____
Period: _____

1.) Make sure you know the definitions of the following vocabulary words. The crossword puzzle and your notes are the best resources.

Observational Study

Experimental Study

Treatment

Variable of Interest

Control Group

Research Question

Primary Data

Census

Sample

Secondary Data

Pilot Study

Placebo Effect

Informed Consent

Population

Alternative Hypothesis

Null Hypothesis

Margin of Error

2.) Answer the following questions completely and show all work, if necessary.

a.) Explain what is meant by saying that "the class president is leading the polls by 44% ± 2%."

b.) Give one example of primary data and one example of secondary data.

Primary:

Secondary:

c.) Give one reason why mentally disabled people need protection with regards to experimental studies.

d.) Give an example of a placebo effect.

e.) What are the components of the "Research Cycle"? Draw the cycle below.

f.) Give an example of each of the five different sampling techniques.

Simple Random	Stratified Random	Systematic	Cluster	Convenience

3.) Answer the questions about the following statistical studies.

Study #1: Mr. Roberts teaches Economics, and he is very concerned with his students' test scores. He wants to know if guided notes improve test grades as compared to copying down all the notes from the board. He decides to give guided notes to his 3rd period, regular notes to his 5th period, and no notes to his 6th period. He then compared the results of the class' test averages.

a.) Is the study experimental or observational? How do you know?

b.) What is the variable of interest?

c.) What is the treatment?

d.) Who were the participants of the study?

e.) What are the advantages of this study?

f.) What are the disadvantages of this study?

g.) Which group is considered the "control group"? Why?

Study #2: A university's financial aid office wants to know how much it can expect students to earn from summer employment. This information will be used to set the level of financial aid. The population contains 3,478 students who have completed at least one year of study but have not yet graduated. A questionnaire will be sent to a random sample of 100 of these students asking how much they plan to make during the next summer.

a.) Is the study experimental or observational? How do you know?

b.) What is the variable of interest?

c.) What is the treatment?

d.) Who are the participants in the study?

e.) What is one disadvantage or flaw in the design of this study?

4. State the Null & Alternative Hypotheses for each situation:

a) A healthcare company believes that they can change patient's stress levels if they play music in the waiting room. They are not sure if the stress levels will increase, decrease, or remain the same. The mean stress level that people report on a scale of 1-10 is a 7.

b) Justin Bieber wishes to increase attendance at his concerts by telling people he will no longer perform at the concert. The average attendance at Bieber's concerts is currently 12 people.

5. Find the Margin of Error for a study conducted with a sample size of 50 people. (MOE = $\frac{1}{\sqrt{n}}$)

6. Find the Margin of Error for a study conducted with a sample size of 5,000 people.

7. Compare the results of your answers to #5-6 and explain the difference.