Statistical Reasoning Name:
6.1 and 6.2 Review

1) Researchers want to investigate whether taking aspirin regularly reduces the risk of heart attack. Four hundred men between the ages of 50 and 84 are recruited as participants. The men are divided randomly into two groups: one group will take aspirin, and the other group will take a placebo. Each man takes one pill each day for three years, but he does not know whether he is taking aspirin or the placebo. At the end of the study, researchers count the number of men in each group who have had heart attacks.

Identify the:

population: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ subjects: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

explanatory variable(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ response variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

treatment(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What type of experiment would be best to use?

Create a diagram to explain how this experiment could be carried out?

2) An educational software company wants to compare the effectiveness of its computer animation for teaching biology with that of a textbook presentation. The company gives a biology pretest to each of a group of high school juniors, and then divides them into two groups. One group uses the animation, and the other studies the test. The company retests all students and compares the increase in biology test scores in the two groups. Is this an example of an observational study or an experiment? Explain.

3) A food scientist has developed a new type of corn that is to yield greater amounts of corn for harvest. Some factors involved in growing corn are the amount of water (only rain or watered in the morning daily); the amount of sun (full or partial); and if pesticide was used (used or not used). You have 120 plants to put into a field for the experiment. Design an appropriate experiment.

4) In marketing children’s products, it’s extremely important to produce television commercials that hold the attention of the children who view them. A psychology hired by a marking research firm wants to determine whether differences in attention span exist among advertisements for different types of products. Fifteen children under 10 years of age are randomly asked to watch one 60-second commercial for one of three types of products, and their attention spans are measured in seconds.

What type of experiment would be best to use?

Design the experiment.

5) Upon reconsidering the above problem, the psychology decides that the age of the child may affect the attention span. Consequently, the psychologist randomly assigns fifteen 10-year-olds, fifteen 8-year-olds, fifteen 6-year-olds, and fifteen 4-year-olds to watch one of the commercials, and their attention spans are measured.

What type of experiment would be best to use?

Design the experiment.