Statistical Reasoning Name:
Chapter 6 – Quick Quiz Review

1)The journal Circulation reported that among 1900 people who had heart attacks, those who drank an average of 19 cups of tea a week were 44% more likely than non-drinkers to survive at least 3 years after the attack.

a) Is this an example of an observational study or an experiment?

b) Does it provide evidence that drinking tea leads to a longer lifespan after a heart attack (i.e. cause-and-effect)?

2) A farm-product manufacturer wants to determine if the yield of a crop is different when the soil is treated with three different types of fertilizers. Fifteen similar plots of land are planted with the same type of seed but are fertilized differently. At the end of the growing season, the mean yield from the sample plots is compared.

a) Identify the:

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

 explanatory variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 response variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 treatment: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b) What type of experiment is being carried out?

c) Draw a diagram to outline the design of the experiment.

3) You are participating in the design of a medical experiment to investigate whether a new dietary supplement will reduce the cholesterol level of middle-aged men. Sixty randomly selected men are available for the study. It is known that weight can affect cholesterol levels in men. What type of design would best work for this experiment? Create a diagram to outline the experiment.

4) Vocabulary

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| \_\_\_\_ 2. block design\_\_\_\_ 3. clinical trial\_\_\_\_ 6. control group\_\_\_\_ 8. double-blind experiment\_\_\_\_ 9. experiment\_\_\_\_ 10. explanatory variable\_\_\_\_ 11. lurking variable\_\_\_\_ 12. matched pairs design\_\_\_\_ 13. nonadherers\_\_\_\_ 14. placebo\_\_\_\_ 15. placebo effect\_\_\_\_ 17. response variable\_\_\_\_ 18. statistically significant\_\_\_\_ 19. subjects\_\_\_\_ 20. treatment | A. experiment which studies the effectiveness of medical treatments on actual patientsB. an experiment in which neither the subjects nor the people who work with them know which treatment each subject is receiving C. a study which deliberately imposes some treatment on individuals in order to observe their responsesD. a variable that has an important effect on the relationship among the variables in a study but is not one of the variables being studiedF. a variable that we think explains or causes changes in the response variablesG. a dummy treatment with no active ingredientsH. the individuals studied in an experimentI. an observed effect so large that it would rarely occur by chance J. a variable that measures an outcome or result of a study L. favorable response to a dummy treatmentM. subjects are first grouped into similar traits and then randomization is carried out separately within each group N. experimental technique comparing pairs of subjects that are alike as much as possible when each receives a different treatment Q. subjects who do not follow the experimental treatmentR. any specific experimental condition applied to the subjectsT. the group in an experiment which receives the placebo treatment or a treatment which is already on the market |