

Pre-Calculus Multiple Choice Questions - Chapter S4

1 Which of the following represents the dependent variable in experimental design?

- a Treatment
- b Factor
- c Control
- d Response variable

	S4.1
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2 Which of the following represents the independent variable in experimental design?

- a Treatment
- b Factor
- c Control
- d Response variable

	S4.1
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3 Which of the following is the combination of all factors in an experiment?

- a Treatment
- b Replicates
- c Control
- d Response variable

	S4.1
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1 Which of the following is NOT one of the three basic principles of experimental design?

- a Control the effect of variables on the response variable
- b Randomize the allocation of individuals to treatments
- c Replicate individuals in the experiment
- d Set the rejection criterion low enough to ensure statistically significant results

	S4.2
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2 What does it mean to replicate individuals in an experiment?

- a Use as many individuals as possible
- b Use many but small samples of individuals
- c Keep the individuals as constant as possible
- d There can be no differences among individuals

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3 What does it mean to control the effect of variables?

- a Have many variables but observe them carefully
- b Only have one variable in the experiment
- c Have no variables in the experiment
- d Have multiple variables but manipulate them

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- 1 Each person in a simple random sample of 2000 received a survey, and 317 people returned their survey. How could nonresponse cause the results of the survey to be biased?
- a Those who did not respond reduced the sample size, and small samples have more bias than large ones
 - b Those who did not respond caused a violation of the assumption of independence
 - c Those who did not respond were indistinguishable from those who did not receive the survey
 - d Those who did not respond represent a stratum, changing the simple random sample into a stratified random sample
 - e Those who did respond may differ in some important way from those who did not respond
- 2 George and Michelle each claimed to have a better recipe for chocolate chip cookies. They decided to conduct a study to determine whose cookies were really better. They each baked a batch of cookies using their own recipe. George asked a random sample of his friends to taste his cookies and to complete a questionnaire on their quality. Michelle asked a random sample of her friends to complete the same questionnaire for her cookies. They then compared the results. Which of the following statements about this study is false?
- a Because George and Michelle have a different population of friends, their sampling procedure makes it difficult to compare the recipes
 - b Because George and Michelle each used their own respective recipes, their cooking ability is confounded with the recipe quality.
 - c Because George and Michelle each used only the ovens in their houses, the recipe quality is confounded with the characteristics of the oven
 - d Because George and Michelle used the same questionnaire, their results will generalize to the combined population of their friends.
 - e Because George and Michelle each baked one batch, there is no replication of the cookie recipes

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	S4.3
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- 3** Under which of the following conditions is it preferable to use stratified random sampling rather than simple random sampling?
- a** The population can be divided into a large number of strata so that each stratum contains only a few individuals
 - b** The population can be divided into a small number of strata so that each stratum contains a large number of individuals
 - c** The population can be divided into strata so that the individuals in each stratum are as much alike as possible
 - d** The population can be divided into strata so that the individuals in each stratum are as much different as possible
 - e** The population can be divided into strata of equal sizes so that each individual in the population still has the same chance of being selected

	S4.3
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