Classroom Voting Questions: Statistics

Design of Experiments

1. "Graduating is good for your health," according to a headline in the Boston Globe (3 April 1998). The article noted "According to the Center for Disease Control, college graduates feel better emotionally and physically than do high school dropouts." Do you think the headline is justified based on this statement?

   (a) Yes, as long as the data was from random samples of college graduates and high school dropouts.

   (b) Yes, because this must have been an observational study. As long as it was a well-designed study, the headline is justified.

   (c) No, because the headline implies a cause and effect relationship, which is not justified based on an observational study.

   (d) No, because this study must have been an experiment and we cant draw cause and effect conclusions from an experiment.

   Answer: (c).

   by Roxy Peck for the textbooks: Roxy Peck and Jay Devore, Statistics: The Exploration and Analysis of Data, 6th Edition, Brooks/Cole Cengage Learning 2008 and Roxy Peck, Chris Olsen and Jay Devore, Introduction to Statistics and Data Analysis, 3rd Edition, Brooks/Cole Cengage Learning 2008.

   STT.03.01.010

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   AS DH MA1333 010 F12: 0/5/**95**/0 time 3:10
   AS DH MA1333 020 F12: 9/74/**17**/0 time 2:00
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   AS DH 1333 020 S14: 0/0/**100**/0 time 2:00 ,
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   CC KC MA315 F15: 13/0/**87**/0
   CC KC MA207 F18: 13/13/**61**/13
   AS DH 1342 030 S20: 0/0/**100**/0 time 2:30

2. In a study of perceived importance of money, 100 attorneys were selected at random from those in private practice and 100 attorneys were selected at random from those

employed by government agencies as district attorneys. The attorneys in each group were asked to respond to a set of questions designed to assess level of stress in the workplace. This study is _____.

(a) an observational study

(b) an experiment

Answer: (a).

by Roxy Peck for the textbooks: Roxy Peck and Jay Devore, Statistics: The Exploration and Analysis of Data, 6th Edition, Brooks/Cole Cengage Learning 2008 and Roxy Peck, Chris Olsen and Jay Devore, Introduction to Statistics and Data Analysis, 3rd Edition, Brooks/Cole Cengage Learning 2008.

STT.03.01.020

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AS DH 1342 030 S20: **55**/45 time 2:10

3. When is it unreasonable to reach a cause-and-effect conclusion based on data from a statistical study?

(a) Any time the study is based on a random sample from a population of interest.

(b) When the study is observational.

(c) When the study is a well-designed experiment that uses random assignment to experimental conditions (treatments).

(d) It is always reasonable to reach a cause-and-effect conclusion based on data from a statistical study.

Answer: (b).

by Roxy Peck for the textbooks: Roxy Peck and Jay Devore, Statistics: The Exploration and Analysis of Data, 6th Edition, Brooks/Cole Cengage Learning 2008 and Roxy Peck, Chris Olsen and Jay Devore, Introduction to Statistics and Data Analysis, 3rd Edition, Brooks/Cole Cengage Learning 2008.

STT.03.01.030

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CC KC MA207 F18: 0/**87**/13/0
AS DH 1342 020 F18: 5/**90**/5/0 time 2:30
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AS DH 1342 030 S20: 0/**85**/15/0 time 2:30