STAT 614 Chapter 2 : Practice Worksheet

1.   A study is conducted on students taking a statistics class. Several variables are recorded in the survey. Identify each variable as categorical or quantitative.
A)   Type of car the student owns.
B)   Number of credit hours taken during that semester.
C)   The time the student waited in line at the bookstore to pay for his/her textbooks.
D)   Home state of the student.
Answer: A)   B)   C)   D)
Topic: 1.1 Displaying Distributions with Graphs

2.   Researchers are conducting a state-wide survey for the U.S. Postal Service. The survey records many different variables of interest. Which of the following variables is categorical?
A)   County of residence.
B)   Number of people, both adults and children, living in the household.
C)   Total household income, before taxes, in 2010.
D)   Age of respondent.
Answer:
Topic: 1.1 Displaying Distributions with Graphs

3.   A particularly common question in the study of wildlife behavior involves observing contests between "residents" of a particular area and "intruders." In each contest, the "residents" either win or lose the encounter (assuming there are no ties). Observers might record several variables, some of which are listed below. Which of these variables is categorical?
A)   The duration of the contest (in seconds).
B)   The number of animals involved in the contest.
C)   Whether the "residents" win or lose.
D)   The total number of contests won by the "residents."
Answer:
Topic: 1.1 Displaying Distributions with Graphs

4.   A description of different houses on the market includes the following three variables. Which of these variables is quantitative?
A)   The square footage of the house.
B)   The monthly gas bill.
C)   The monthly electric bill.
D)   All of the above.
Answer:
Topic: 1.1 Displaying Distributions with Graphs

5.   Jason is buying a new computer. He is comparing various models using many different variables. These variables play an important role in making the decision about which computer he will buy. Identify each of the following variables as categorical or quantitative.
A)   Does the computer come with a CD/DVD writer?
B)   What is the hard drive size of the computer?
C)   Is the computer a laptop or a desktop model?
D)   How much does the computer cost?
Answer: A)   B)   C)   D)

6.   A study of 2007 model automobiles was conducted. In the study the following variables were considered: the **Region** in which the car was manufactured (Europe, North America, Asia); the **Type** of automobile (compact, midsize, large); the fuel economy in city driving of the automobile (**MPG-City**), volume of the engine in liters (**EngSize**), and the type of **Fuel** used (regular, premium, diesel). The variables Region, Type, MPG-City, EngSize, and Fuel are, respectively:
A)   quantitative, categorical, categorical, quantitative, quantitative.
B)   categorical, categorical, quantitative, categorical, categorical.
C)   categorical, categorical, quantitative, categorical, quantitative.
D)   categorical, categorical, quantitative, quantitative, categorical.
E)   Unable to determine without knowing the values of the various variables.
Answer:
Topic: 1.1 Displaying Distributions with Graphs

7. Which **scale of measurement** is most appropriate for the following?

(nominal, ordinal, or interval)

a) City of Residence?

b) Number of people that you have known who have had lung cancer?

c) Temperature (Celsius)?

d) Eye color (brown, black, blue, hazel, etc) ?

e) Attitude toward paid paternity leave (favor, neutral, oppose)?

f) Satisfaction with salary (very satisfied, somewhat satisfied, somewhat unsatisfied, very unsatisfied)

g) Home ownership (yes/no)?

h) Number of Pets (0, 1, 2, or more)

8. Identify which of the following variables are discrete and which would be measured on a continuous scale.

a) Level of education

b) Favorite type of music

c) Annual Income

d) Religious Affiliation

e) Number of Family Members

f) Finish time for a marathon

g) Distance traveled to work.

9.
A researcher is studying the relationship between sugar consumption and weight gain. Twelve volunteers were randomly assigned to one of two groups. The first group of five participants was put on a diet low in sugar and the second group of the remaining seven participants received 10% of their calories from sugar. After 8 weeks, weight gain was recorded from each participant.

12.   What type of study is this?
A)   An observational study.
B)   An experiment, but not a double-blind experiment.
C)   A double-blind experiment.
D)   A matched-pairs experiment.
Answer:
Topic: Introduction

10.   In order to determine if smoking causes cancer, researchers surveyed a large sample of adults. For each adult they recorded whether the person had smoked regularly at any period in their life and whether the person had cancer. They then compared the proportion of cancer cases in those who had smoked regularly at some time in their lives with the proportion of cases in those who had never smoked regularly at any point in their lives. The researchers found a higher proportion of cancer cases among those who had smoked regularly than among those who had never smoked regularly. What type of study is this?
A)   An observational study.
B)   An experiment, but not a double-blind experiment.
C)   A double-blind experiment.
D)   A block design.
Answer:
Topic: Introduction

11. Many studies are trying to find a cure for chronic back pain. In one such study, a physician is comparing the medication currently being used (drug A) to a newly developed drug (drug B). Seventy-three volunteers, suffering from chronic back pain, are participating in this study. The physician's assistant has a list of all 73 subjects and randomly divides the subjects into two groups. Group 1 will receive drug A and Group 2 will receive drug B. The assistant is the only one who knows to which group the subjects have been assigned. The physician monitors the subjects over a 2-month period and the amount of improvement is recorded. What type of study is this?
A) An observational study.
B) An experiment, but not a double-blind experiment.
C) A double-blind experiment.
D) A matched-pairs experiment.
Answer:
Topic: Introduction

12. Each of the 12 volunteers receives a label: 01 through 12. Use the list of random digits below to determine the labels of the first five participants selected who were put on a low-sugar diet. Start at the beginning of the list and use double-digit labels.

81507 27102 56027 55892 33063 41842 81868 71035 09001 23367 49497

A) 8, 1, 5, 0, 7
B) 8, 1, 5, 7, 2
C) 2, 6, 10, 9, 12
D) 2, 2, 6, 10, 9
Answer:
Topic: 3.1 Design of Experiments

13. Each of the 8 men receives a label: 1 through 8. Use the list of random digits below to determine the labels of the four men who are to be given shark fin extract twice a day. Start at the beginning of the list and use single-digit labels.

02902 28461 80624 10082 56872 88033 48932 03845 98302 83623 36704

A) 0, 2, 9, 0
B) 0, 2, 9, 8
C) 2, 8, 4, 6
D) 2, 9, 8, 4
Answer:
Topic: 3.1 Design of Experiments