

Define the terms ‘population,’ ‘sample,’ ‘parameter,’ and ‘statistic,’ and explain how the terms are related to each other.

1

To understand statistics, it is incredibly important to “put” the concepts in your own words. Here is a chance for you to do this. Create two multiple choice questions (with options a, b, c, d) that could be used on a test. The concepts that you may choose from are: *single blind study, double-blind study, reliability, validity, random sampling, correlations, qualitative, discrete variables.*

2

Explain the difference between descriptive and inferential statistics.

3

Name the independent and the dependent variables in each of the examples below:

- ✦ A researcher reports that people who survived one heart attack and were given daily doses of aspirin were significantly less likely to suffer a second heart attack than survivors who did not take aspirin.
- ✦ A recent report concludes that participants on an exercise regimen of running two miles each day had a lower percentage of body fat than participants on no exercise program.
- ✦ A researcher studying the effects of environment on mood asks participants to sit alone in a waiting room for 15 minutes at the beginning of an experiment. Half of the individuals are assigned to a room with dark blue walls. The other half are assigned to a room with bright yellow walls. After 15 minutes each person is brought to the lab and given a mood assessment questionnaire.

4

“THERE ARE TWO KINDS OF STATISTICS...THE KIND YOU LOOK UP AND THE KIND YOU MAKE UP.”



Dr. Jones conducted a study examining the relationship between the quality of breakfast and academic performance for a sample of $n = 20$ first-grade students. The quality of breakfast was determined by interviewing each child’s parents, and academic performance was measured by each child’s most recent grades. Is this an example of a correlational or an experimental study? Explain your answer.

5

The Health Study of Nord-Trøndelag County of Norway (HUNT) surveyed more than 60,000 people in a Norwegian county and reported that “people who have gastrointestinal symptoms, such as nausea, are more likely to have anxiety disorders or depression than people who do not have such symptoms.”



To what population do these findings generalize? (Choose one: Norway, the County, 60,000 people, or people with G.I. symptoms.)

Explain your answer.

6

For each of the following examples state whether the variable is discrete or continuous.

- 📱 The capacity, in terms of songs, of an MP3 player
- 📱 The playing time of an individual song
- 📱 The number of posted reviews that a CD has on Amazon.com
- 📱 The weight of an MP3 player
- 📱 Name another variable to describe MP3 players, and state whether it is discrete or continuous.

ABOUT 16 BILLION GALLONS OF SODA ARE CONSUMED IN THE USA, EVERY YEAR.



List one song in your MP3 player, phone or playlist.

7

8 For each of the following examples regarding the Kentucky Derby, identify the scale of measurement identified in the underlined variables. The variable is named for you, to the left of each item.

- Age..... 🐎 The Kentucky Derby is a stakes race for three-year-old Thoroughbred horses.
- Weight.. 🐎 Colts and geldings carry 126 pounds (57.2 kg) and fillies 21 pounds (54.9 kg).
- Year... 🐎 The first Kentucky Derby was run in 1875.
- # races.. 🐎 The Kentucky Derby has been run 135 times.
- Zip code 🐎 The zip code for Churchill Downs (the Kentucky Derby racetrack) is 40208.
- # people 🐎 10,000 people attended the first race.
- Order.... 🐎 In 2005, Giacomo placed first, Closing Argument placed second, and Afleet Alex came in third.
- Time, sec. 🐎 Giacomo won in 2 minutes, 2.75 seconds.
- Time, clock.... 🐎 In 2009, the race started at 6:04 p.m.
- Money... 🐎 A dollar bet on Giacomo paid \$51.30.
- Ethnicity 🐎 Of the first 28 Kentucky Derby winners, 15 of them were ridden by African American jockeys.
- Gender... 🐎 Three fillies have won the Kentucky Derby. The others were all colts or geldings.
- Money.... 🐎 In 2008, Big Brown won the Derby. His winnings totaled \$2,000,000.



If you want to know how old a horse is, all you need to do is count its teeth. It's true!