

Ch1 Homework

1. A local newspaper provided an article with the headline, 11% of all road accident fatalities in the United States involve drivers who were distracted with smart-phones while driving. The article noted that using smart-phone while driving resulted in the highest fatality rate on the road. Identify one major error in this report.

2. A student newspaper club ran a survey by asking its readers to respond to this question: "Do you support a leader who has no vision of the future?". It was reported that 100 readers responded, and 80% said no while 40% said yes. Identify 3 major flaws in this survey.

3. Sample or population data?

- a) 100 students at a community college.
- b) all students at a community college.
- c) 3,000 fish in a lake.
- d) all the fish in a lake.

4. Discrete or continuous data?

- a) A Gamestop store has 10 PS4s.
- b) A car is randomly selected at a traffic safety checkpoint, and the car has 6 cylinders.
- c) The volume of cola in a can of regular Coke is 12.3 oz.
- d) The waiting time for a phone call is 5 minutes and 6 seconds.

5. Numerical or categorical

- a) The ages of 10 CEOs are: 29,45,67,35,40,55,60,53,49,33.
- b) The table below represents the answers from 405 teenagers regarding family planning.

Method	Number
Abstinence	14
Condoms	47
Injectables	1
Norplant	1
Pill	35
None	307
Total	405

- c) The data of 100 babies divided into 4 groups: Asian, Caucasian, Hispanic, Others.

6. Determine whether measurement of data is of nominal, ordinal, interval, or ratio scale.

- a) Name of colleges of 4 students
- b) Driving distance to college of 4 students: 20, 68, 80, 92

7. Researchers want to investigate whether taking a new drug improve sexual dysfunction. Five hundred couples between the ages of 30 and 40 are recruited as participants. The couples are divided randomly into two groups: one group will take the drug, and the other group will take a placebo. Each couple takes one pill each day for one month, but they do not know whether it is the drug or the placebo. At the end of the study, researchers count the number of couple in each group who enjoy sex more than before.

Identify the following values for this study: population, sample, experimental units, explanatory variable, response variable, treatments.

8. A student wants to estimate the percent of all community college students who like math courses. He/she randomly surveys 100 students at his/her college. The survey reveals that only 15% like math.

a) How many students like math according to the survey?

b) How many students dislike math according to the survey?

c) The student concludes that 15% of all community college students like math. What would you say to this student's conclusion?

9. A student wants to estimate the percent of all Bay Area babies who get sick yearly. He/she randomly surveys 500 parents. The survey reveals that 45% get sick yearly.

a) How many Bay Area babies get sick yearly?

b) How many Bay Area babies do not get sick yearly?

10. A student wants to estimate the percent of all Bay Area workers who stay home during the Covid-19 crisis. He/she randomly surveys 100 workers. The survey reveals that 35% stay home during the Covid-19 crisis.

a) How many Bay Area workers stay home during the Covid-19 crisis according to the survey?

b) How many Bay Area workers do not stay home during the Covid-19 crisis according to the survey?

11. Provide your opinion on the data below. Any opinion is ok as long as you provide an explanation for it.

racial origin in the USA	population (in millions)	median salary in 2018
Caucasian	221	\$61,000
Hispanic	47	\$47,000
Asian	15.7	\$80,000
African	38.8	\$39,000
Native American	2.9	\$40,000
Others	0.7	\$57,000