

AP Statistics Summer 2019 Homework

General Information

- Teacher: Meaghan Simms
 - 2019 - 2020 will be my 10^h year teaching, all of which have been at Lakeland High School.
 - This will be my third year teaching AP Statistics and Honors Probability with Statistical Applications.
- Email: meaghan.simms@polk-fl.net
 - Please contact me if you have any questions; I check my email all summer.
 - Also, my website is a good resource: <https://mathisfunsimms.wordpress.com>
- Textbook: *Stats: Modeling the World (AP Edition) 3rd Edition* by Bock, Velleman, De Veaux
 - Visit <http://phschool.com/> and enter web code "aze-0641"

Assignment

- Read *Chapter 1: Stats Starts Here* and *Chapter 2: Data* (pages 2-16).
 - You will be assigned certain readings throughout the year. You are expected to read these assigned pages.
- Answer the **Unit 1: Sampling and Experimentation (Chapters 1 and 2: Data) Reading Questions**.
 - You will have questions every chapter to answer based on the assigned readings.
- Answer the **Chapter 2 Homework Problems**. (they are taken from the Chapter 2 Exercises 1, 3, 7, 11, 13, 14, 22, 23)
 - You will have homework problems assigned for every chapter.

Prep Suggestions

- If possible, purchase a TI-83 or TI-84 (any version of either). A large amount of this class is based around this calculator and it is vital to have your own calculator for assignments, assessments, etc.
- Try answering the "Just Checking" question on p. 13.
 - The answers are found at the end of the chapter exercises. These boxes are found throughout the textbook and are good practice while reading each chapter.
 - Practice working with the graphing calculator by going through the TI Tips on pages 14-15.

Assigned Reading Questions for Chapter 1 and Chapter 2: Data

Read textbook pages 2-16, then answer the following questions.

1) According to the authors, what are the “three simple steps to doing *Statistics* right”?

2) What do the authors refer to as the “W’s of data”?

3) Why must data be in context?

4) Explain the difference between a *categorical variable* and a *quantitative variable*. Give an example of each.

5) Explain how to enter a list of data into the calculator.

Important Vocabulary

Use your textbook and/order another resource to define the following terms.

- Statistics
- Sample
- Population
- Variable
- Units
- Categorical Variable
- Quantitative Variable

Chapter 2: Data Homework Problems

1) Voters. A February 2007 Gallup Poll question asked, “In politics, as of today, do you consider yourself a Republican, a Democrat, or an Independent?” The possible responses were “Democrat”, “Republican”, “Other”, and “No Response.” What kind of variable is the response?

3) Medicine. A pharmaceutical company conducts an experiment in which a subject takes 100 mg of a substance orally. The researchers measure how many minutes it takes for half of the substance to exit the bloodstream. What kind of variable is the company measuring?

For Exercises 7 and 11, for each description of data, identify Who and What were investigated and the population of interest.

7) Bicycle Safety. Ian Walker, a psychologist at the University of Bath, wondered whether drivers treat bicycle riders differently when they wear helmets. He rigged his bicycle with an ultrasonic sensor that could measure how close each car was that passed him. He then rode on alternating days with and without a helmet. Out of 2500 cars passing him, he found that when he wore his helmet, motorists passed 3.35 inches closer to him, on average, than when his head was bare. [*NY Times*, Dec. 10, 2006]

11) Fitness. Are physically fit people less likely to die of cancer? An article in the May 2002 issue of *Medicine and Science in Sports and Exercise* reported results of a study that followed 25,892 men aged 20 to 87 for 10 years. The most physically fit men had a 55% lower risk of death from cancer than the least fit group.

For Exercises 13, 14, 22, 23, for each description of data, identify the W’s, name the variables, specify for each variable whether its use indicates categorical or quantitative data. Identify the units (or note not specified) for the quantitative variables.

13) Weighing bears. Because of the difficulty of weighing a bear in the woods, researchers caught and measured 54 bears, recording their weight, neck size, length, and sex. They hoped to find a way to estimate weight from the other, more easily determined quantities.

14) Schools. The State Education Department requires local school districts to keep these records on all students: age, race or ethnicity, days absent, current grade level, standard tests scores for reading/math, and any disabilities/special educational needs.

22) Fuel economy. The Environmental Protection Agency (EPA) tracks fuel economy of automobiles based on information from the manufacturers (Ford, Toyota, etc.). Among the data the agency collects are the manufacturer, vehicle type (car, SUV, etc.), weight, horsepower, and gas mileage (mpg) for city and highway driving.

23) Refrigerators. In 2006, *Consumer Reports* published an article evaluating refrigerators. It listed 41 models, giving the brand, cost, size (cu ft), type (such as top freezer), estimated annual energy cost, an overall rating (good, excellent, etc.), and the repair history for that brand (percentage requiring repairs over the past 5 years).