

STA101 Problem Set 6

Summer I, 2021, Duke University

Exercises from the OpenIntro book

Chapter 6 exercises 6.12, 6.19, 6.24, 6.41, 6.48.

Additional problems

Problem 6

(Adapted from Exercise 6.33.)

A professor using an open source introductory statistics book predicts that 50% of the students will purchase a hard copy of the book, 30% will print it out from the web, and 20% will read it online. At the end of the semester he asks his students to complete a survey where they indicate what format of the book they used. Of 150 students in his class, 80 said they bought a hard copy of the book, 40 said they printed it out from the web, and 30 said they read it online.

- (a) State the hypotheses for testing if the professor's predictions were inaccurate.
- (b) How many students did the professor expect to buy the book, print the book, and read the book exclusively online?
- (c) This is an appropriate setting for a chi-square test. List the conditions required for a test and verify they are satisfied.
- (d) Calculate the chi-squared statistic, the degrees of freedom associated with it, and the p-value.
- (e) Based on the p-value calculated in part (d), what is the conclusion of the hypothesis test? Interpret your conclusion in this context.