

Homework 9

S520, Spring 2019

Due at the beginning of class, Tuesday March 26th. Please upload your file to Canvas no later than 1pm on the due date. Late submission will be accepted (but penalized) before the solutions are posted.

Trosset question numbers refer to the hardcover textbook. Show all work.

1. (9 points) Trosset exercise 9.6.6.
2. (9 points) Trosset exercise 9.6.7.
3. (8 points) Trosset Section 10.5 Problem Set A, Questions 1 and 2.
4. (6 points) Trosset Section 10.5 Problem Set B, Questions 2 and 3.
5. (3 points) Trosset Section 10.5 Problem Set D, Question 3.
6. (6 points) A researcher wanted to see if live reggae music improved students' math test scores.¹ He selected a sample of 61 students from his university and gave them a math test. The students then studied for two and a half hours while an acoustic reggae band played quietly. The students then took another math test of the same difficulty. The researcher's variable was the change in test score for each student: a positive change meant the student did better after listening to reggae, while a negative change meant a student did worse. He found that the observed changes had an approximately normal distribution with mean 6.5 and standard deviation 12.
 - (a) Assuming the sample is random, test the hypothesis that the population average change is positive.
 - (b) Does the study provide convincing evidence that live reggae music improves students' math test scores? Explain why or why not.
7. (5 points) Trosset Section 11.4 Problem Set B, Question 3.