

# Homework 1

Due January 23, 2020 at 11:59 PM

1. P. 13: 1 (5 points)
2. P. 13: 2 (5 points)
3. P. 14: 6 (5 points)
4. P. 19: 1 (5 points)
5. P. 24: 8 (5+5 points)
6. A group of chemists and chemical engineers tested their newly-designed Type I Diabetes medication on rats. The goal was to figure out if the medicine would improve the conditions of Type I Diabetes-afflicted rats in general (future work will be on humans). 18 rats with Type I diabetes were randomly selected for the study. Half of these 18 rats were randomly selected to be given the medicine, and the others were not given any medicine. For each rat, the investigators recorded the improvement of the rat's physical fitness over the duration of the experiment (measured according to initial and final stress tests). The weight of each rat on the first day of the study was passively recorded. The investigators made sure that the distribution of food, room temperature, opportunity for exercise, etc., was the same for each rat for the duration of the study.
  - (a) What is the population of interest for this study? What is the sample? (5 points)
  - (b) Is this study an experiment or an observational study? Why? (5 points)
  - (c) Identify and classify all the variables in this study. (5 points)
  - (d) Identify the treatment groups, if any, and state how many there are. (5 points)