

Homework Set 3

1. Reading: Section 4.2 and Chapter 5.
2. Problem 4.8 (p. 117).
3. Derive the sample size formula for the paired t-test.
4. Suppose a study is to be conducted in which a medication for hypertension is to be given to a sample of middle-aged men. Each man will have his systolic blood pressure (SBP) recorded; then medication will commence for a 14-day period, after which the SBP reading will be taken again. In previous studies of a related medication the before-after difference in SBP has a variance of  $400 \text{ (mm Hg)}^2$ . Suppose the new medication is of interest if it reduces the mean SBP by 5 mm Hg or more. How many men should be studied in order to have the significance level of 0.05 and also to have a 90% chance of detecting a 5 mm Hg change in mean SBP?
5. Problems 5.1, 5.3, 5.6, 5.9 (pp. 143-146).