1. Let $\mu$ denote the true mean score on a certain type of test. Consider the problem of testing $H_0 : \mu = 80$ versus $H_1 : \mu > 80$ based on a sample of size $n$ from a normal population with $\sigma = 6$.

(a) If the critical region has the form $\bar{X} \geq C$, then what value of $C$ makes the probability of Type I error equal to 0.015? Use $n = 36$.

(b) What is the P-value of the above test if $\bar{X} = 83$? What decision is reached in this case at the 0.015 level?

(c) What is the probability of Type II error if $\mu = 83$? What is the power of the test for the same value of $\mu$?

(d) If it is required that the power of this test be 0.975 when $\mu = 83$, what sample size would be necessary (still assuming that we have a level $\alpha = 0.015$ test)?

2. Section 8.1, No 2

3. Section 8.1, No 4

4. Section 8.2, No 3

5. Section 8.2, No 4