

CHAPTER 9: Hypothesis Tests

Learning Objectives

After studying this chapter and doing the exercises, you should be able to:

1. Give an account of the logical steps involved in a statistical hypothesis test.
2. Explain the meaning of the terms null hypothesis, alternative hypothesis, Type I error, Type II error, level of significance, p -value and critical value in statistical hypothesis testing.
3. Set up appropriate null and alternative hypotheses for testing research hypotheses, testing the validity of a claim, and testing in decision-making situations.
4. Construct and interpret hypothesis test for a population mean:
 - 4.1 When the population standard deviation is known
 - 4.2 When the population standard deviation is unknown.
5. Construct and interpret hypothesis test for a population proportion.
6. Explain the relationship between the construction of hypothesis tests and confidence intervals.
7. Calculate the probability of a Type II error for a hypothesis test of a population mean when the population standard deviation is known.
8. Estimate the sample size required for a hypothesis test of a population mean when the population standard deviation is known.