

Section 9.5/9.6 — Examples

Problem: (Exercise 9.37) An article in the *Washington Post* stated that nearly 45% of the U.S. population is born with brown eyes, although they don't necessarily stay that way. To test the claim, a random sample of 80 people was selected, and 32 had brown eyes.

1. State the null hypothesis, the alternative hypothesis, and calculate the test statistic.
2. Is there sufficient evidence to dispute the claim regarding the proportion of brown-eyed people in the U.S.? Use $\alpha = .01$.

Problem: (Numbers from exercise 9.44) Independent random samples of 280 ND undergraduates and 350 ND graduate students were selected and asked to name the prime minister of Canada. Suppose that 132 ND undergraduates knew who it was, and 178 ND graduate students knew who it was. We want to see if the proportion of ND undergraduates who know Canada's prime minister is smaller than the proportion of ND graduate students who do.

1. State the null and alternative hypotheses.
2. What is the best estimate of $p = p_1 = p_2$? What is the test statistic?
3. Is there sufficient evidence to conclude that p_1 is smaller than p_2 ?