

Constructing Hypotheses

Identify H_0 and H_1 in each case

1. It is believed that less than half the population prefers Candidate X for the election.
2. I have a die that I think turns up 1's the appropriate proportion of time.
3. We are going to shut this factory down if they are not filtering out at least 90% of Pollutant Y.
4. I don't believe that 40% of ENC's students are from Massachusetts.

1) Suppose I told you that 40% of my IS students get an A. You don't believe it's that high, so you randomly sample 60 past students and get 18 A's. Test my claim at a 5% significance level.

2) In a study of smokers who tried to quit smoking with nicotine patch therapy, 39 were smoking one year after the treatment, and 32 were not smoking. Use a 5% significance level to test the claim that among smokers who try to quit with nicotine patch therapy, the majority are smoking a year after the treatment.

3) I bought a “magician’s die” in a shop the other day. It makes a claim that “It turns up the number 1 40% of the time.” I wanted to test to see if that was accurate, so I rolled the die 200 times, and counted 90 1’s. Do the test for me.