Steps of Hypothesis Testing

Step 1: State the Hypotheses

- Write out the null and alternative hypotheses
  - In words and symbols unless otherwise specified

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Step 2: Select the Statistical Test and the Significance Level

- One-sample z-test: comparison of one sample mean to a population mean when the population standard deviation is known
  - We will learn other tests
- Typically set alpha at .05
  - Alpha is the area in the null distribution we define to be unlikely

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Step 3: Calculate the Test Statistic

- The test statistic is computed based on the type of statistical test being performed
  - For the one sample z-test, the test statistic is the z-score

$$z = \frac{M - \mu_0}{\sigma_M}$$

Steps of Hypothesis Testing

Step 4: Make a decision

- Two approaches:
  - Find the rejection region:
    - The rejection region is the region in the tail(s) that have an area exactly equal to alpha
  - Determine the p-value
    - The p-value is the probability of finding a test statistic more extreme than the one obtained