Section 9.3 — Examples

Example 1: Suppose 40 speedometers are tested for accuracy at 55 mph. Let μ be the true average reading when the speed is 55 mph, and suppose we want to test if the true average reading is different from 55. In our sample, we get $\bar{x} = 55.6$ and $s = 1.3$.

Example 2: Suppose 37 fish are tested for mercury. Let μ be the true average level of mercury in the fish, and suppose we want to know if μ is larger than 60. In our sample, we get $\bar{x} = 60.5$, $s = 1.1$.

1. State the null and alternative hypotheses.

2. Calculate the value of the test statistic.

3. Calculate the p-value of the test statistic.

4. Calculate the critical value for rejecting the null hypothesis at 5% significance.

5. Can we reject the null hypothesis at 5% significance? Can we reject at 1% significance?