7-steps of Hypothesis Testing

1) State the set of hypotheses
   \[ H_0: \mu \geq 7 \]
   \[ H_a: \mu < 7 \]

2) Select significance level, \( \alpha \), the cutoff point for deciding if the p-value is small enough

3) Check any assumptions needed to calculate p-value
   \[ \text{eg } \bar{x} \text{ follow normal?} \]

4) Calculate the test statistic

5) Calculate the p-value

6) Compare p-value to \( \alpha \) and state our decision
   - Reject if p-value \( \leq \alpha \)
   - FTR if p-value \( > \alpha \)

7) State the conclusion in terms of the research question
   - If \( H_0 \) rejected:
     "at the \( \alpha \) level, we have enough evidence to conclude that..."
   - If \( H_0 \) is not rejected:
     "at the \( \alpha \) level, there is not enough evidence to conclude that..."