

# Wackerly Section 1.1 Problems

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April 4, 2021

## Problem 1.1

- (a).
  - Population: Generation X U.S. citizens
  - Inferential Objective: Proportion of population interested in starting their own business.
  - Sample: Surveys via mail and in person interviews.
- (b).
  - Population: Healthy adults
  - Inferential Objective: Average temperature of the population.
  - Sample: Medical records from check ups.
- (c).
  - Population: Single family dwelling units (problem does not explicitly state these units are in use, but we will assume there is a family living in there).
  - Inferential Objective: Average weekly water consumption.
  - Sample: Check water meters weekly. For apartments, divide water meter value by the number of single family dwelling units in use.
- (d).
  - Population: Tires of a specific company, made in a specific year.
  - Inferential Objective: Proportion of unsafe tread among the population.
  - Sample: Auditing manufacturing factories via random inspection.
- (e).
  - Population: Adult residents of a particular state.
  - Inferential Objective: Proportion of population that prefer unicameral legislature.
  - Sample: Online and in person surveys/polls. Propose to be on the upcoming ballot.
- (f).
  - Population: Infected individuals.
  - Average recurrence time for a disease.
  - Sample: Medical data from check ups and trials.
- (g).
  - Population: Transistors of a certain type.
  - Inferential Objective: Truth value of: 'average life of population members  $> 500$  hours'
  - Sample: Run a large sample of these transistors for 500 hours. Then calculate the proportion still alive after 500 hours. If the proportion is greater than 0.5, then the Inferential Objective is True. Otherwise the Inferential Objective is False.