

Lesson 6-1: Populations and Samples

1. Sample answer: To determine a representative sample, generate a sample that will likely reflect the same characteristics as the entire population.
2. Sample answer: A representative sample best reflects the characteristics and positions or opinions of the population from which it is drawn.
3. Sample answer: Use a random number generator and a spreadsheet that will order the numbers. Then take the jars off the assembly line whose position in the line matches the generated numbers.
4. The population is all 600 members of the health club.
5. Sample answer: The teacher could put the names of the 120 students in a hat and randomly select names to create a random sample.
6. a. The residents of the town.
b. Sample answer: The customers at one of the restaurants that serves beef brisket.
7. 15; 200
8. 4; all
9. All of the supermarket's customers.
10. Sample answer: The store can randomly select trainees by assigning each trainee a number and then randomly selecting numbers. The larger the sample size, the greater the confidence the store chain should have that the sample represents the population.
11. a. Magic show attendees
b. Cruise ship passengers.
12. Sample answer: The population consists of all the landscaping company's employees. A representative sample could consist of randomly selected employees of the landscaping company.
13. 6; Sample answer: Because the ratio of yellow marbles to red marbles is 1:3 in the population, the expected number of red marbles is 3 times the number of yellow marbles in the representative sample.
14. Sample answer: Chung could write the names of all the teachers at his school on slips of paper and choose names from a hat. If he takes multiple samples he can tell if his sampling method generates representative samples.
15. a. She identified 237 as the sample instead of the population.
b. 40; 40 students were surveyed.
16. Yes; it is a random sample consisting of many members that reflects the population of registered voters.
17. All of the students in David's school

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18. a. Sample answer: Because they took a sample of only residents of Florida, the results do not accurately reflect the population of all Americans.

b. Sample answer: The researchers can broaden the sample to include American citizens of all states.

19. No; Sample answer: The students in this sample do not represent the entire student population. A majority of the members of the survey are art students, but only 11% of the students in the entire school study art.

20. Sample answer: The supermarket could ask people as they enter the store to choose a marble from a bag that contains several different colors of marbles. If the marble is red, the customer is surveyed.

21. Sample answer: To generate a representative sample, Gwen must survey all types of shoppers, including those who make small purchases or make no purchase at all.

22. A, D

23. a. D

b. Sample answer: The sample and population both consist of students in different grades from various states