

## Practice Problems Section 1B

Directions: For each of the following, identify the population of interest. Then identify the method used to collect the data (census, systematic, convenience, voluntary response, cluster, stratified, or simple random). Explain why you chose your answer and if the method will represent the population of interest or not?

1. The admissions department at a college wants to see how many of their students would be in favor of using a new program to register for classes. They put a link on their website so that any students that want to try out the program can. The students can then take a survey and say how well they like the new system.
2. Rick works for a sports equipment manufacturing company. He wants to compare the opinion of his older employees to the new employees. To do this, he separates all the employees into two groups, employees that have been with company five or more years and those that have been with the company less than five years. He then chooses 12 of his most trusted older employees and 16 new employees that have proven themselves and ask what they think about changing the medical insurance coverage.
3. Michelle, a teacher at a local high school, wants to see how many students at her high school will be attending community college. She gives the students in her one section of advanced placement U.S. History a questionnaire to fill out that asks where they will be attending college.
4. Jamie is working at the Republican recruiting committee in her city. She is curious how many people that live in her city will vote for the Republican candidate in the next election. She uses a computer to randomly select phone numbers in her city. She then calls those phone numbers to ask people about their voting preferences.
5. Rachael works at the Democrat recruiting center in her hometown. To determine what percent of people will vote for the Democratic candidate, she obtains a list of all residents in her town and decides to ask every 40<sup>th</sup> person on the list.
6. Laya is passionate about bringing an NFL football team to her city. She needs to take an opinion poll about how people in her city would feel about raising taxes in order to build a stadium for a professional football team. She randomly selects 75 streets in her city and asks every person living on those streets.
7. Micah is the CEO of large software development company. He wants to see if his employees have any ideas about areas of software development that the company should pursue. He has every single employee in his company fill out a questionnaire outlining his or her ideas. He gives the employees a stipend on their paycheck to pay them for their time it took to fill out the questionnaire.
8. Tara wants to collect data on people living in Portland Oregon. She wants to know how many cups a coffee they drink per day. She went to a few supermarkets close to her house and asked people as they were leaving the store.
9. Julius works for a company in Toronto, Canada that manufactures eyeglasses. He wants to know what styles of glasses people in Toronto prefer. He randomly selects phone numbers in Toronto and calls them to ask about glasses preference.
10. Hugo works at a public library and wants to collect data on all of the people that come to the library. He looks up every single person in the library database and notes the number of books that he or she has checked out in the last six months.
11. A company is designing a new type of smart phone. They want to know how much memory people prefer in their smart phones. They put a question up on several search engines and allow anyone to answer.
12. A college wants to collect data on their students to see how often they use the various student services offered by the college. They randomly select 60 classes and collect data from all of the students taking those classes.



13. A clothing store is designing a new line of athletic wear. They want to compare the percentage of teenagers that prefer the new line of athletic wear to the percentage of adults that prefer the new line of athletic wear. They take a random sample of teenagers and ask them about the new athletic wear. Then they take a random sample of adults and ask them about the new athletic wear.

14. Brian is collecting data for his statistics class project on the amount of time people spend on social media per day. He asks people in his college classes and at his church how many minutes they spend on social media per day.

15. A store that sells BBQ's in North Carolina wants to know what percentage of people own a "smoker BBQ". They ask every third person that enters the store if they own a smoker BBQ or not.

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