33. Airline Seating You are the operations manager for American Airlines and you are considering a higher fare level for passengers in aisle seats. You want to estimate the percentage of passengers who now prefer aisle seats. How many randomly selected air passengers must you survey? Assume that you want to be 95% confident that the sample percentage is within 2.5 percentage points of the true population percentage.

a. Assume that nothing is known about the percentage of passengers who prefer aisle seats.

b. Assume that a recent survey suggests that about 38% of air passengers prefer an aisle seat (based on a 3M Privacy Filters survey).

34. Windows Penetration You plan to develop a new software system that you believe will surpass the success of Google and Facebook combined. In planning for the operating system that you will use, you need to estimate the percentage of computers that use Windows. How many computers must be surveyed in order to be 99% confident that your estimate is in error by no more than one percentage point?

a. Assume that nothing is known about the percentage of computers with Windows operating systems.

b. Assume that a recent survey suggests that about 90% of computers use Windows operating systems (based on data from Net Applications).

c. Does the additional survey information from part (b) have much of an effect on the sample size that is required?

35. Twitter As manager for an advertising company, you must plan a campaign designed to increase Twitter usage. You want to first determine the percentage of adults who know what Twitter is. How many adults must you survey in order to be 90% confident that your estimate is within five percentage points of the true population percentage?

a. Assume that nothing is known about the percentage of adults who know what Twitter is.

b. Assume that a recent survey suggests that about 85% of adults know what Twitter is (based on a Pew Research Center survey).

c. Given that the required sample size is relatively small, could you simply survey the adults at the nearest college?

36. On-time Rate You have been given the task of estimating the percentage of Southwest flights that arrive on time, which is no later than 15 minutes after the scheduled arrival time. How many flights must you survey in order to be 80% confident that your estimate is within three percentage points of the true population percentage?

a. Assume that nothing is known about the percentage of on-time Southwest flights.

b. Assume that for a recent year, 84% of Southwest flights were on time (based on data from the Bureau of Transportation Statistics).

c. Given that the sample size is relatively small, can you select Southwest flights between New York (LaGuardia) and San Francisco?

Using Appendix B Data Sets. ***In Exercises 37 and 38, use the indicated data set from Appendix B.***

37. Heights of Presidents Refer to Data Set 12 in Appendix B. Treat the data as a sample and find the proportion of presidents who were taller than their opponents. Use that result to construct a 95% confidence interval estimate of the population percentage. Based on the result, does it appear that greater height is an advantage for presidential candidates? Why or why not?