26. Screening for Marijuana Use If 3 of the subjects are randomly selected without replacement, what is the probability that they all had true negative test results? Is such an event unlikely?

In Exercises 27–30, find the probabilities and indicate when the "5% guideline for cumbersome calculations" is used.

27. Road Rage In a Prince Market Research survey of 2518 motorists, 252 said that they made an obscene gesture in the previous month.

a. If 1 of the surveyed motorists is randomly selected, what is the probability that this motorist did *not* make an obscene gesture in the previous month?

b. If 50 of the surveyed motorists are randomly selected without replacement, what is the probability that none of them made an obscene gesture in the previous month?

28. Flirting In a Microsoft Instant Messaging survey, 1021 adults were asked to identify the most fun way to flirt, and 61of them chose e-mail.

a. If 1 of the surveyed adults is randomly selected, what is the probability that this person chose something other than e-mail?

b. If 40 of the different subjects are randomly selected without replacement, what is the probability that each of them chose something other than e-mail?

29. Online Shopping Survey 427 different adult women were randomly selected and asked what they purchase online, and 162 of the women said that they purchase clothes online (based on a survey by the *Consumer Reports* Research Center).

a. If 2 of the surveyed women are randomly selected without replacement, what is the probability that they both chose the category of clothing?

b. If 10 different surveyed women are randomly selected without replacement, what is the probability that *none* of them chose the category of clothing?

30. Airline Survey Among respondents asked which is their favorite seat on a plane, 492 chose the window seat, 8 chose the middle seat, and 306 chose the aisle seat (based on data from *USA Today*).

a. What is the probability of randomly selecting 1 of the surveyed people and getting one who did not choose the middle seat?

b. If 2 of the surveyed people are randomly selected without replacement, what is the probability that neither of them chose the middle seat?

c. If 25 different surveyed people are randomly selected without replacement, what is the probability that none of them chose the middle seat?

4-4 Beyond the Basics

31. System Reliability Refer to the figure at the top of the next page in which surge protectors *p* and *q* are used to protect an expensive 3D HDTV. If there is a surge in the voltage, the surge protector reduces it to a safe level. Assume that each surge protector has a 0.99 probability of working correctly when a voltage surge occurs.

a. If the two surge protectors are arranged in series, what is the probability that a voltage surge will not damage the television? (Do not round the answer.)

b. If the two surge protectors are arranged in parallel, what is the probability that a voltage surge will not damage the television? (Do not round the answer.)