33. Texting While Driving In a *New York Times*/CBS News poll, respondents were asked if it should be legal or illegal to send a text message while driving. Eight said that it should be legal and 804 said that it should be illegal. What is the probability of randomly selecting someone who believes it should be legal to text while driving? Is it unlikely to randomly select someone with that belief?

34. Cell Phones While Driving In a *New York Times*/CBS News poll, respondents were asked if it should be legal or illegal to use hand-held cell phones while driving. One hundred forty-one said that it should be legal, and 663 said that it should be illegal. What is the probability of randomly selecting someone who believes it should be legal to use a hand-held cell phone while driving? Is it unlikely to randomly select someone with that belief?

35. Favorite Seat on a Plane 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*). What is the probability that a passenger prefers the middle seat? Is is unlikely for a passenger to prefer the middle seat? If so, why do you think the middle seat is so unpopular?

36. At the End of the Day In a Marist poll, respondents chose the most annoying phrases used in conversation. Nineteen chose "at the end of the day," 441 chose "whatever," 235 chose "you know," 103 chose "it is what it is," 66 chose "anyway," and 75 were unsure. Based on these results, what is the probability of selecting someone who considers "at the end of the day" to be the most annoying phrase? At the end of the day, is it unlikely to select someone with that choice?

Probability from a Sample Space.   *In Exercises 37–42, use the given sample space or construct the required sample space to find the indicated probability.*

37. Three Children Use this sample space listing the eight simple events that are possible when a couple has three children (as in Example 1): {bbb, bbg, bgb, bgg, gbb, gbg, ggb, ggg}. Assume that boys and girls are equally likely, so that the eight simple events are equally likely. Find the probability that when a couple has three children, there is exactly one girl.

38. Three Children Using the same sample space and assumption from Exercise 37, find the probability that when a couple has three children, there are exactly two girls.

39. Two Children Exercise 37 lists the sample space for a couple having three children. First identify the sample space for a couple having two children, then find the probability of getting one child of each gender. Again assume that boys and girls are equally likely.

40. Four Children Exercise 37 lists the sample space for a couple having three children. First identify the sample space for a couple having four children, then find the probability of getting three girls and one boy (in any order).

41. Genetics: Eye Color Each of two parents has the genotype brown/blue, which consists of the pair of alleles that determine eye color, and each parent contributes one of those alleles to a child. Assume that if the child has at least one brown allele, that color will dominate and the eyes will be brown. (The actual determination of eye color is somewhat more complicated.)

a. List the different possible outcomes. Assume that these outcomes are equally likely.

b. What is the probability that a child of these parents will have the blue/blue genotype?

c. What is the probability that the child will have brown eyes?

42. X-Linked Genetic Disease Men have XY (or YX) chromosomes and women have XX chromosomes. X-linked recessive genetic diseases (such as juvenile retinoschisis) occur when there is a defective X chromosome that occurs *without* a paired X chromosome that is good. In the following, represent a defective X chromosome with lowercase x, so a child with the xY