3. Brown Eyes Groups of 600 people are randomly selected. Find the mean and standard deviation for the numbers of people with brown eyes in such groups, then use the range rule of thumb to identify the range of usual values for those with brown eyes. For such a group of 600 randomly selected people, is 200 with brown eyes unusually low or high?

4. Brown Eyes When randomly selecting 600 people, the probability of exactly 239 people with brown eyes is $P(239) = 0.0331$. Also, $P(239 \text{ or fewer}) = 0.484$. Which of those two probabilities is relevant for determining whether 239 is an unusually low number of people with brown eyes? Is 239 an unusually low number of people with brown eyes?

In Exercises 5 and 6, refer to the table in the margin. The random variable x is the number of males with tinnitus (ringing ears) among four randomly selected males (based on data from "Prevalence and Characteristics of Tinnitus among US Adults" by Shargorodsky et al.,* American Journal of Medicine, *Vol. 123, No. 8).

x	P(x)
0	0.674
1	0.280
2	0.044
3	0.003
4	0+

5. Tinnitus Does the table describe a probability distribution? Why or why not?

6. Tinnitus Find the mean and standard deviation for the random variable x. Use the range rule of thumb to identify the range of usual values for the number of males with tinnitus among four randomly selected males. Is it unusual to get three males with tinnitus among four randomly selected males?

7. Brand Recognition In a study of brand recognition of the Kindle eReader, four consumers are interviewed. If x is the number of consumers in the group who recognize the Kindle brand name, then x can be 0, 1, 2, 3, or 4. If the corresponding probabilities are 0.026, 0.154, 0.346, 0.246, and 0.130, does the given information describe a probability distribution? Why or why not?

8. Expected Value for *Deal or No Deal* In the television game show *Deal or No Deal,* contestant Elna Hindler had to choose between acceptance of an offer of $193,000 or continuing the game. If she continued to refuse all further offers, she would have won one of these five equally likely prizes: $75, $300, $75,000, $500,000, and $1,000,000. Find her expected value if she continued the game and refused all further offers. Based on the result, should she accept the offer of $193,000, or should she continue?

9. Expected Value for a Magazine Sweepstakes *Reader's Digest* ran a sweepstakes in which prizes were listed along with the chances of winning: $1,000,000 (1 chance in 90,000,000), $100,000 (1 chance in 110,000,000), $25,000 (1 chance in 110,000,000), $5,000 (1 chance in 36,667,000), and $2,500 (1 chance in 27,500,000).

a. Assuming that there is no cost of entering the sweepstakes, find the expected value of the amount won for one entry.

b. Find the expected value if the cost of entering this sweepstakes is the cost of a postage stamp. Is it worth entering this contest?

10. Phone Calls In the month preceding the creation of this exercise, the author made 18 phone calls in 30 days. No calls were made on 19 days, 1 call was made on 8 days, and 2 calls were made on 5 days.

a. Find the mean number of calls per day.

b. Use the Poisson distribution to find the probability of no calls in a day.

c. Based on the probability in part (b), how many of the 30 days are expected to have no calls?

d. There were actually 18 days with no calls. How does this actual result compare to the expected value from part (c)?