**12. Happiness** Groups of people aged 15–65 are randomly selected and arranged in groups of six. The random variable $x$ is the number in the group who say that their family and/or partner contribute most to their happiness (based on a Coca-Cola survey).

| x | P(x) |
|---|------|
| 0 | 0+ |
| 1 | 0.003 |
| 2 | 0.025 |
| 3 | 0.111 |
| 4 | 0.279 |
| 5 | 0.373 |
| 6 | 0.208 |

**13. Happiness** In a survey sponsored by Coca-Cola, subjects aged 15–65 were asked what contributes most to their happiness, and the table is based on their responses.

|  | P(x) |
|---|------|
| Family/partner | 0.77 |
| Friends | 0.15 |
| Work/studies | 0.08 |
| Leisure | 0.08 |
| Music | 0.06 |
| Sports | 0.04 |

**14. Casino Games** When betting on the pass line in the dice game of craps at the Mohegan Sun casino in Connecticut, the table lists the probabilities for the number of bets that must be placed in order to have a win.

| x | P(x) |
|---|------|
| 1 | 0.493 |
| 2 | 0.250 |
| 3 | 0.127 |
| 4 | 0.064 |
| 5 | 0.033 |

**Genetics.**  *In Exercises 15–18, refer to the accompanying table, which describes results from groups of 10 births from 10 different sets of parents. The random variable x represents the number of girls among 10 children.*

| Number of Girls x | P(x) |
|---|------|
| 0 | 0.001 |
| 1 | 0.010 |
| 2 | 0.044 |
| 3 | 0.117 |
| 4 | 0.205 |
| 5 | 0.246 |
| 6 | 0.205 |
| 7 | 0.117 |
| 8 | 0.044 |
| 9 | 0.010 |
| 10 | 0.001 |

**15. Mean and Standard Deviation** Find the mean and standard deviation for the numbers of girls in 10 births.

**16. Range Rule of Thumb for Unusual Events** Use the range rule of thumb to identify a range of values containing the usual numbers of girls in 10 births. Based on the result, is 1 girl in 10 births an unusually low number of girls? Explain.

**17. Using Probabilities for Unusual Events**

**a.** Find the probability of getting exactly 8 girls in 10 births.

**b.** Find the probability of getting 8 or more girls in 10 births.

**c.** Which probability is relevant for determining whether 8 is an unusually high number of girls in 10 births: the result from part (a) or part (b)?

**d.** Is 8 an unusually high number of girls in 10 births? Why or why not?

**18. Using Probabilities for Unusual Events**

**a.** Find the probability of getting exactly 1 girl in 10 births.

**b.** Find the probability of getting 1 or fewer girls in 10 births.

**c.** Which probability is relevant for determining whether 1 is an unusually low number of girls in 10 births: the result from part (a) or part (b)?

**d.** Is 1 an unusually low number of girls in 10 births? Why or why not?