13-4 Practice
Simulations

Design and conduct a simulation using a geometric probability model. Then report the results using appropriate numerical and graphical summaries.

1. TRACK Sean successfully handed off his baton 95% of the time in the 4×4 relay last season.

Sample answer: Use a spinner containing sectors of 342° and 18°. Conduct 20 trials. Probability of a successful hand-off = 0.9 and the probability of an unsuccessful hand-off = 0.1. See students' bar graphs.

Outcome	Frequency
Successful	18
Not Successful	2
Total	20

2. BOARD GAME A game has 50 cards with 10 each numbered 1 to 5, and a player must draw a 2 or a 3 to move out of the "start" position.

Sample answer: Use a spinner with 5 equal sectors numbered 1 to 5. Conduct 20 trials. Probability of drawing a 1 = 0.1; probability of drawing a 2 = 0.15; probability of drawing a 3, 4, or 5 = 0.25 each. See students' bar graphs.

Outcome	Frequency
1	2
2	3
3	5
4	5
5	5
Total	20

Design and conduct a simulation using a random number generator. Then report the results using appropriate numerical and graphical summaries.

3. REAL ESTATE A real estate company reviewed last year's purchases to determine trends in sizes of homes purchased. The results are shown in the table.

Sample answer: Assign integers 1–20: 2BR 1–2, 3BR 3–9, 4BR 10–15, 5BR 16–18, 6BR 19–20. Conduct 20 trials. Probability of the purchase of a 2BR = 0.05, of a 3BR = 0.4, of a 4BR = 0.35, of a 5BR = 0.15, and of a 6BR = 0.05. See students' bar graphs.

Homes	Purchase %
2BR	10%
3BR	35%
4BR	30%
5BR	15%
6BR	10%

Outcome	Frequency
2BR	1
3BR	8
4BR	7
5BR	3
6BR	1
Total	20

4. GRADES On Jonah's math quizzes last semester he scored an A 80% of the time, a B 15% of the time, and a C 5% of the time.

Sample answer: Assign integers 1–20: A 1–16, B 17–19, and C 20. Conduct 20 trials. Probability of scoring an A = 0.8, a B = 0.15, and a C = 0.05. See students' bar graphs.

Outcome	Frequency
A	16
B	3
C	1
Total	20