

Name: \_\_\_\_\_



PRACTICE



TUTORIAL

## 7-7 Additional Practice

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1. A boy wins a carnival game 50% of the time. He uses a spinner with equal-sized sections labeled 0 through 9 to simulate trials of the game. In the simulation, the numbers 0 through 4 represent winning and the numbers 5 through 9 represent losing. Based on the simulations below that represent the boy playing the game 3 times, what is the probability he wins all 3 times?

412 750 236 808 904 237 424 648 121 208

2. The probability that a certain bacteria colony thrives in laboratory conditions is 70%. In a simulation conducted using a random-number generator, the numbers 0 through 6 represent bacteria colonies that thrive and the numbers 7 through 9 represent bacteria colonies that do not thrive in the laboratory. There are 4 total bacteria colonies. The results of 6 trials are recorded below. Based on the simulated results, what is the probability that exactly half of the colonies will thrive?

4285 6903 3829 7871 2868 5137

3. A fair coin is used to simulate the gender of each child in a family with three children. In the simulation, a coin that lands heads up (H) represents a girl, and a coin that lands tails up (T) represents a boy. The simulation is conducted to generate the gender of each child from 10 families. Based on the simulated data recorded below, what is the probability that a family with three children has exactly 2 girls?

Family 1: (H H T)

Family 6: (H H H)

Family 2: (T T T)

Family 7: (T H H)

Family 3: (H H H)

Family 8: (T H T)

Family 4: (H H T)

Family 9: (T H H)

Family 5: (T T T)

Family 10: (H T H)

4. The chance that it will rain in the town where a family is spending vacation is 60% for each of 3 days. A spinner is used to simulate the weather pattern over the 3-day period. There are 5 equal sized sections. 3 sections are labeled "R" to represent days with rain. 2 sections are labeled "N" to represent days with no rain. The results of the simulation are recorded below.

(R, N, R) (N, N, R) (R, R, R) (N, R, R) (N, R, N) (R, R, N) (N, R, N) (R, N, R)

What is the experimental probability that it will rain exactly 1 out of the 3 days?



**5. Higher Order Thinking** Of all listeners who call the local radio station on the telephone, 60% are between the ages of 15 and 25. A random number generator is used to simulate 20 groups representing the next 6 listeners who will call the radio station, and the simulated data is recorded below.

(2, 3, 5, 9, 1, 6)    (2, 0, 2, 2, 7, 2)    (9, 9, 9, 5, 5, 0)    (0, 4, 9, 9, 4, 0)    (3, 7, 7, 2, 5, 8)  
 (2, 5, 5, 2, 4, 1)    (6, 4, 6, 7, 9, 4)    (5, 2, 9, 7, 8, 3)    (4, 7, 1, 3, 4, 3)    (7, 0, 7, 3, 3, 5)  
 (8, 6, 3, 0, 0, 6)    (9, 1, 0, 7, 7, 7)    (2, 6, 3, 1, 1, 7)    (8, 0, 0, 8, 3, 7)    (9, 1, 8, 7, 4, 6)  
 (9, 3, 6, 0, 5, 0)    (0, 0, 8, 3, 7, 8)    (2, 5, 2, 7, 3, 5)    (3, 5, 1, 5, 0, 2)    (5, 1, 9, 9, 7, 4)

- a. Which of the following describes possible numbers that may be used to represent listeners within and outside of the age range?
- Ⓐ Within Age Range: 0 through 5    Outside of Age Range: 6 through 10
  - Ⓑ Within Age Range: 0 through 4    Outside of Age Range: 5 through 9
  - Ⓒ Within Age Range: 0 through 6    Outside of Age Range: 7 through 9
  - Ⓓ Within Age Range: 0 through 5    Outside of Age Range: 6 through 9
- b. Based on the simulated data, what is the probability that the next six listeners that call the radio station are between 15 and 25 years of age?
- c. How will the simulated results change if a different set of numbers are assigned to conduct this simulation? Explain.

## © Assessment Practice

6. The probability that the Mustangs win a certain game is 50%. A fair coin is used to simulate the team's chance of winning 4 of the next 7 games. A winning game is represented by a coin that lands heads up.

H, H, T, T, H, T, T    H, T, T, H, H, H, T    T, T, H, T, H, T, T  
 H, T, H, H, H, T, T    T, T, H, H, H, T, H    H, T, H, T, T, H, H

### PART A

Based on the simulated results of the 6 trials above, what is the probability that the Mustangs will win 4 of the next 7 games?

### PART B

According to the simulated results, what is the probability that the Mustangs win 4 games before playing all 7 games?

