10-1 Exercises, pp. 514–515

1. Purple
2. The events are equally likely.
3. Likely
4. Impossible
5. Yes, it is likely, since the movie does not end for another 10 minutes.
6. The events are equally likely.
7. Black
8. Impossible
9. Unlikely
10. Since Wednesday is a weekday, it is not likely that the planetarium will be open before noon.
11. The plant would be more likely to have purple flowers because there are 500 more plants with purple flowers than plants with white flowers.
12. **a.** Very likely, since most fish are bony fish
    b. Impossible, since a shark is not a bony fish
13. Unlikely, since carbon dioxide levels increased steadily between 1958 and 1994
14. Possible answer: You have a set of cards numbered 1–20. How likely are you to draw a number less than 100? How likely are you to draw a negative number? How likely are you to draw an even number?

10-1 Exercises, pp. 514–515 (continued)

15. Possible answer: There are just as many ways that the event can happen as there are ways the event cannot happen.
16. Since there are now 8 red and 8 blue marbles, the events are equally likely.
17. 50%
18. 32.5
19. B
20. H

10-2 Exercises, pp. 518–519

1. $\frac{3}{5}$
2. **a.** $\frac{13}{15}$
   b. $\frac{2}{15}$
3. $\frac{13}{30}$
4. $\frac{8}{15}$
5. **a.** $\frac{9}{14}$
   b. $\frac{5}{14}$
6. $\frac{9}{23}$
7. $\frac{2}{5}$
8. $\frac{16}{25}$
9. **a.** 9.1 in.
   b. 0
   c. $\frac{1}{5}$
10. $\frac{11}{30}$
11. **a.** $\frac{3}{8}$
    b. 0
12. $\frac{7}{10}$
13. 1
14. 1
15. 5
16. 3
17. B
18. F

10-3 Exercises, pp. 522–523

1. There are 4 possible outcomes in the sample space: H1, H2, T1, T2
2. The possible outcomes are sugar-vanilla, sugar-chocolate, sugar-strawberry, sugar-pistachio, sugar-coffee, cake-vanilla, cake-chocolate, cake-strawberry, cake-pistachio, cake-coffee, waffle-vanilla, waffle-chocolate, waffle-strawberry, waffle-pistachio, waffle-coffee, cup-vanilla, cup-chocolate, cup-strawberry, cup-pistachio, and cup-coffee; 20
3. 24 possible outcomes
4. Football-football, football-movie, football-concert, basketball-football, basketball-movie, basketball-concert, documentary-football, documentary-movie, documentary-concert; 9
5. There are 8 possible outcomes in the sample space: 1H, 1T, 2H, 2T, 3H, 3T, 4H, 4T.
6. H1, H2, H3, H4, H5, T1, T2, T3, T4, T5; 10
7. Oatmeal-milk, oatmeal-orange juice, oatmeal-apple juice, oatmeal-hot chocolate, corn flakes-milk, corn flakes-orange juice, corn flakes-apple juice, corn flakes-hot chocolate, scrambled eggs-milk, scrambled eggs-orange juice, scrambled eggs-apple juice, scrambled eggs-hot chocolate; 12
8. 27 different one-topping pizzas can be ordered.
9. 6 different ways

10-3 Exercises, pp. 522–523 (continued)

10. **a.** 24 ways
b. 120 ways

11. **a.** 9 possible outcomes
b. 6 possible outcomes
c. 12 possible outcomes

12. 12 possible trails

13. How many outcomes are possible if he draws one card from each pile?

14. Possible answer: Use the Fundamental Counting Principle. Each number cube can land 6 ways: $6 \cdot 6 = 36$.

15. HHH, HHT, HTH, HTT, THH, THT, TTH, TTT

16. 12.5%

17. 75%

18. 40%

19. 30%

20. B

21. H

10-4 Exercises, pp. 526–527

1. $\frac{1}{6}$, 0.17, 17%

2. $\frac{1}{4}$, 0.25, 25%

3. **a.** $\frac{3}{7}$
b. $\frac{2}{7}$
c. $\frac{2}{7}$

4. $\frac{1}{2}$, 0.5, 50%

5. $\frac{1}{4}$, 0.25, 25%

6. $\frac{1}{50}$, 0.02, 2%

7. **a.** $\frac{3}{7}$
b. $\frac{4}{7}$

8. **a.** 37%
b. 0.41

9. **a.** 64%
b. 25%

10. Francis wore orange. Raymond wore tan. Albert wore purple. Amanda wore aqua.

11. The numerator means there are 3 favorable outcomes, and the denominator means there are 8 possible outcomes.

12. $\frac{2}{3}$

13. $n = -21$

14. $x = 19$

15. $s = -41$

16. $y = 33$

17. B

10-5 Exercises, pp. 532–533

1. Independent; the outcome of one coin does not affect the outcome of the other.

2. Dependent; the outcome of the first draw affects the outcome of the second.

3. $\frac{1}{6}$

4. $\frac{1}{60}$

5. $\frac{3}{20}$

6. Dependent; the choice of the first book affects the choice of the second.

7. Independent; one event does not affect the other.

8. $\frac{6}{25}$

9. $\frac{1}{4}$

10. $\frac{1}{7}$

11. Dependent; $\frac{3}{14}$

12. $\frac{1}{9}$

13. $\frac{16}{25}$

14. $\frac{12}{145}$

15. Possible answer: There are 15 boys and 17 girls in Mrs. Brown's class. She randomly chooses 2 students from the class to attend the student council meeting. What is the probability that both the students she chooses will be boys?

16. Dependent; with dependent events, the outcome of the first event influences the outcome of the second event.

10-5 Exercises, pp. 532–533 (continued)

17. $\frac{16}{25}$

18. 12

19. 3

20. 13

21. 15

22. B

23. F