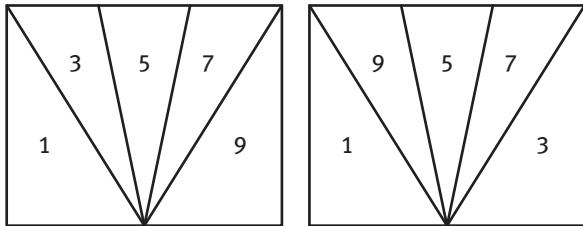


# Answers to Course 2 Unit 5 Practice

## LESSON 20-1

1. Sage is correct because 7 is the largest number on the spinner, and the space for 7 on spinner A is larger than the space for 7 on spinner B.
2. This is false because the spaces for 1 are not the same size on the two spinners. Spinner B should land on 1 more often because the space is larger.
3.  $(1, 1)$   $(1, 3)$   $(1, 5)$   $(1, 7)$   $(3, 1)$   $(3, 3)$   $(3, 5)$   $(3, 7)$   
 $(5, 1)$   $(5, 3)$   $(5, 5)$   $(5, 7)$   $(7, 1)$   $(7, 3)$   $(7, 5)$   $(7, 7)$
4. a. Answers will vary.  
b. Sage should have been correct in choosing spinner A due to the larger space on spinner A for the number 7.
5. a. Answers will vary. Sample answer shown.

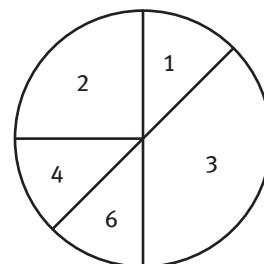


- b. Answers will vary. Sample answer: The spinner on the right will give a player an advantage because the two numbers in the larger sections are the smallest numbers.

## LESSON 20-2

6. In this game, the chances are less likely to match your friend because there are three sections that will not match your friend and only one section that will match your friend.
7. This is not a fair game because there is not an equal chance for both players to win on each turn.

8. Answers will vary. Sample answer shown.



9. a.  $P(A) = \frac{1}{4}$   
b.  $P(B) = \frac{1}{8}$   
c.  $P(C) = \frac{3}{8}$   
d.  $P(D) = \frac{1}{8}$   
e.  $P(E) = \frac{1}{8}$
10. This statement is false. The size of the spaces is the same so the probability is the same.

## LESSON 20-3

11. A is most likely to be spun since the area of this part is larger.
12. This is reasonable since about half of the spinner face is covered by the area of the A portion.

13. a. 4

$$\text{b. } \frac{4}{12} = \frac{1}{3}$$

14. a.  $P(C) = \frac{5}{15} = \frac{1}{3}$   
b.  $P(A) = \frac{7}{15} \approx \frac{1}{2}$

15. Matson is correct because the more times an experiment is performed and the data collected and compiled, the more accurate the data is.

24. The probabilities of choosing a blue and choosing a green are not equally likely because there are 8 blue chips and only 7 green chips.

## LESSON 20-4

16. In spinner B the area of the portion for 3 is the greatest so the  $P(3)$  is the greatest.
17. In spinner C the area of the portion for 2 is the least so the  $P(2)$  is the least.
18. In spinners B and C, the areas for 1 and 2 are equal to each other so on both spinners  $P(1)$  and  $P(2)$  are the same.

19. a.  $P(1) = \frac{1}{2}$

b.  $P(2) = \frac{1}{4}$

c.  $P(3) = \frac{1}{8}$

d.  $P(4) = \frac{1}{8}$

e.  $P(5) = \frac{1}{16}$

20. Sequence 1 makes sense since 1 should occur about half the time.

## LESSON 21-1

21. Spinner A shows equally likely outcomes.
22. The probability of each outcome on spinner A is  $\frac{1}{4}$ .
23. There would need to be 8 yellow chips added so that there are 8 of each.

25. a. F 10 A 20 S 30 T 10  
b. The probability of earning 20 points on one turn is  $\frac{1}{5}$ .

## LESSON 21-2

26.  $P(\text{win}) = \frac{14}{24} = \frac{7}{12}$  or 0.58

27. This is estimated probability since it was calculated by observing the outcome of a probability experiment many times.

28. Answers will vary.

29. Answers will vary.

30. These are estimated probabilities since they were calculated by observing the outcome of a probability experiment many times.

## LESSON 21-3

31.  $P(F) = \frac{21}{34}$

32.  $P(I) = \frac{5}{34}$

33.  $P(R \text{ and } S) = \frac{1}{34}$

34.  $P(S \text{ and } T) = \frac{4}{34} = \frac{2}{17}$

35.  $P(F') = \frac{13}{34}$

## LESSON 22-1

36. Pascal won this game because there are 8 out of 15 turns with two odds or two evens and only 7 turns with an odd and an even.

37. Pascal won on  $\frac{9}{15}$  of the turns and Audrie won on  $\frac{6}{15}$  of the turns.

38.  $P(\text{both rolls even}) = \frac{8}{15}; 0.53$

39.  $P(\text{both rolls odd}') = \frac{14}{15}; 0.93$

40. This is a fair game because the chance of each player winning on each turn is equal.

## LESSON 22-2

41.

|                      |                   |
|----------------------|-------------------|
| (rock, paper)        | (paper, rock)     |
| (scissors, rock)     | (water, rock)     |
| (rock, rock)         | (paper, paper)    |
| (scissors, paper)    | (water, paper)    |
| (rock, scissors)     | (paper, scissors) |
| (scissors, scissors) | (water, scissors) |
| (rock, water)        | (paper, water)    |
| (scissors, water)    | (water, water)    |

42. a.  $\frac{2}{16} = \frac{1}{8}$

b.  $\frac{4}{16} = \frac{1}{4}$

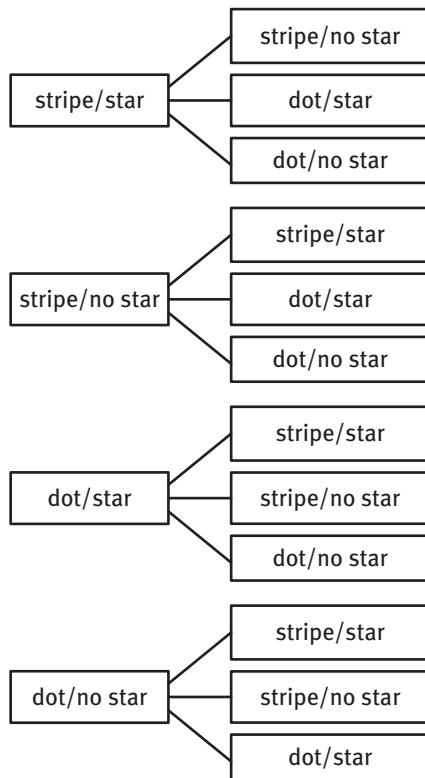
43. Answers will vary.

44. a. Answers will vary.  
b. Answers will vary.  
c. Answers will vary.

45. This is not a fair game because the chance of each throw winning is not even. Rock and scissors can only win  $\frac{1}{8}$  of the time but water and paper can win  $\frac{1}{4}$  of the time.

## LESSON 22-3

46.



47.  $P(\text{star}) = \frac{10}{12} = \frac{5}{6}$

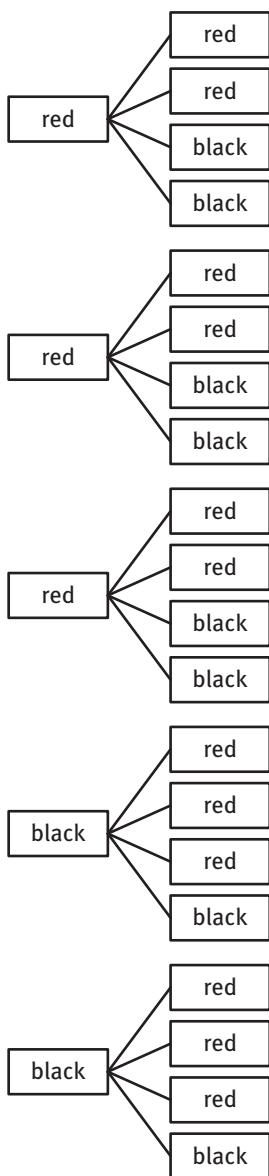
48.  $P(\text{stripes, stripes}) = \frac{2}{12} = \frac{1}{6}$

49.  $P(\text{card without stars}) = \frac{1}{2}$

50. The probabilities are different because in the first example there needs to be only one card that fits the criteria and in the second example both cards need to fit the criteria so it is harder to choose.

## LESSON 22-4

51.



52.

- |              |              |              |                |
|--------------|--------------|--------------|----------------|
| (red, red)   | (red, red)   | (red, black) | (red, black)   |
| (red, red)   | (red, red)   | (red, black) | (red, black)   |
| (red, red)   | (red, red)   | (red, black) | (red, black)   |
| (black, red) | (black, red) | (black, red) | (black, black) |
| (black, red) | (black, red) | (black, red) | (black, black) |

$$53. P(\text{black, red}) = \frac{6}{20} = \frac{3}{10}$$

$$54. P(\text{red, red}) = \frac{6}{20} = \frac{3}{10}$$

55. The probability of choosing a red marble and then a black marble is higher than choosing two black marbles in a row because there are three red marbles to choose first to follow with a black marble but there are only two black marbles to choose first.

## LESSON 23-1

56. Spinner D could be substituted for rolling a number cube because there are six spaces that are equally likely to occur just like the numbers on a number cube.

57. 8 marbles of 5 different colors are needed or 40 more marbles are needed so that each number on a number cube is represented by 8 marbles of a different color.

58. Six digits will be needed so that each number on a number cube has its own digit to represent it.

59. a. Answers may vary. Sample answer: 1 and 2 could represent red, 3 and 4 could represent blue, 5 and 6 could represent green, and 7, 8, 9 and 0 could represent yellow.

- b. Answers will vary. Sample answer shown.

| Digit   | 7 | 0 | 0 | 9 | 6 | 4 | 8 | 3 | 5 | 2 |
|---------|---|---|---|---|---|---|---|---|---|---|
| Outcome | Y | Y | Y | Y | G | B | Y | B | G | R |

60. Answers will vary. Sample answer:  $P(\text{red}) = \frac{1}{10}$

## LESSON 23-2

61. This will represent a coin toss because there are four assignments for heads and four assignments for tails. When 4 is the result, both heads and tails would be the result.

62.

| Digit | 3 | 4 | 5 | 4 | 9 | 6 | 5 | 8 | 1 |
|-------|---|---|---|---|---|---|---|---|---|
| Color | R | B | Y | B | R | Y | Y | - | R |

63. The number 8 does not represent a color so it would be a no result.

64. Answers will vary. Sample answer: Digits 0, 1, and 2 could represent A, digits 3, 4, and 5 could represent B and 6, 7, and 8 could represent C. The digits 9 and 0 would be excluded and be a no result.

65. This is not a fair game because there are many more answers that are equal to or greater than 18 than less than 18.

Less than or equal to 10 – 3

Between 10 and 18 – 7

Greater than or equal to 18 – 16

## LESSON 23-3

66. Answers will vary. Sample answer: The digits 0, 1, 2, and 3 could be red and the digits 4, 5, 6, 7, 8, and 9 could be black.

67. Answers will vary. Sample answer: 8 darts would land on red and 17 darts would land on black.

$$68. P(\text{red}) = \frac{8}{25} = \frac{64}{200}$$

69. Answers will vary. Sample answer: The digits 0 and 1 could be assigned to red and the other digits 2–9 could be assigned to black.

70. Answers will vary. Sample answer: The digits 0, 1, 2 and 3 could be assigned to success and the remaining digits 4–9 could be assigned to failure.

## LESSON 23-4

71. There are three choices of cards. They are choosing an ace, a card with a number on it and a face card.

72. 5 of the picks resulted in a face card.

73. 2 of the picks resulted in an ace.

$$74. P(\text{face card or ace}) = \frac{7}{25}$$

$$75. P(\text{card with a number}) = \frac{18}{25}$$