Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Accel Math 6/7 -Probability Study Guide

True/False
Indicate whether the statement is true or false.

Answer each questions with True or False

____ 1. The closer the probablity of an event is to 1, the less likely it is to happen.

____ 2. If the probability is equal to zero, that means it can never happen.

____ 3. The probability of dependent events means that the result of the first event affects the probability of the second event.

____ 4. A tree diagram is a helpful tool to determine the number of outcomes in a sample space.

____ 5. The fundamental counting principle helps determine the number of outcomes..

Multiple Choice
Identify the choice that best completes the statement or answers the question.

For each situation, make a tree diagram to show the sample space. Then give the total number of outcomes.

____ 6. tossing a nickel and tossing a quarter
a. 2
b. 4
c. 6
d. 8

____ 7. picking a number from 1 to 4 and choosing the color red, green, or yellow
a. 6
b. 9
c. 12
d. 24

Use the Counting Principle to find the number of possible outcomes.

____ 8. Isabelle has a choice of 2 colors of pants, 3 colors of shirts, and 2 kinds of shoes. How many different outfits can she wear?
a. 4
b. 13
c. 7
d. 12

Find the number of possible outcomes for the situation.

____ 9. Christmas sweatshirts come in three sizes and six colors.
a. 18 outcomes
b. 9 outcomes
c. 24 outcomes
d. 36 outcomes

____ 10. A number cube is rolled three times.
a. 36 outcomes
b. 216 outcomes
c. 18 outcomes
d. 66 outcomes

____ 11. A number cube is rolled and a number card is drawn from cards numbered 1-14.
a. 146 outcomes
b. 14 outcomes
c. 84 outcomes
d. 20 outcomes

____ 12. A one-topping pizza comes in three sizes with thin or thick crust and a choice of seven toppings.
a. 12 outcomes
b. 21 outcomes
c. 36 outcomes
d. 42 outcomes

____ 13. A quiz has six true-false questions.
a. 64 outcomes
b. 12 outcomes
c. 26 outcomes
d. 62 outcomes

____ 14. There are three answer choices for each of 6 multiple choice questions.
a. 243 outcomes
b. 729 outcomes
c. 36 outcomes
d. 18 outcomes

____ 15. A new car is available with standard or automatic transmission, two or four doors, and is available in 10 exterior colors.
a. 40 outcomes
b. 14 outcomes
c. 104 outcomes
d. 44 outcomes

A jar contains 5 blue marbles, 8 red marbles, 4 white marbles, and 3 purple marbles. Suppose you pick a marble at random without looking. Find the probability of each event. Write your answer as a fraction in simplest form.

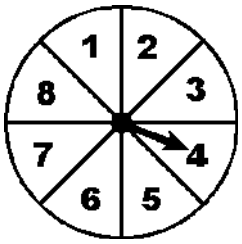
____ 16. *P*(red)
a. $\frac{3}{5}$
b. $\frac{8}{20}$
c. $\frac{3}{10}$
d. $\frac{2}{5}$

____ 17. *P*(blue)
a. $\frac{1}{3}$
b. $\frac{1}{4}$
c. $\frac{5}{20}$
d. $\frac{3}{4}$

____ 18. *P*(red or white)
a. $\frac{3}{5}$
b. $\frac{2}{5}$
c. $\frac{12}{20}$
d. $\frac{1}{5}$

____ 19. *P*(blue or purple)
a. $\frac{1}{4}$
b. $\frac{2}{5}$
c. $\frac{1}{5}$
d. $\frac{8}{20}$

____ 20. *P*(not white)
a. $\frac{1}{5}$
b. $\frac{3}{5}$
c. $\frac{4}{5}$
d. $\frac{3}{4}$



The spinner above is used in a game. What is the probability of the following events?

____ 21. *P*(odd).

a. $\frac{1}{2}$
c. 1
b. $\frac{1}{6}$
d. 0

____ 22. *P*(a prime number).

a. 1
c. 0
b. $\frac{1}{6}$
d. $\frac{1}{2}$

____ 23. *P*(5).

a. 1
c. 0
b. $\frac{5}{8}$
d. $\frac{1}{8}$

____ 24. *P*(not 1).

a. $\frac{7}{8}$
c. $\frac{1}{8}$
b. 0
d. 1

____ 25. A bean bag is tossed randomly on the square below. Write *P*(green or red) as a fraction, a decimal, and a percent.

Red	Blue	Blue	Red
White	Blue	Green	White
White	Green	Green	White
Red	Blue	Blue	Red

a. $\frac{7}{20}$, 0.35, 35%
c. $\frac{7}{16}$, 0.4375, 4.375%
b. $\frac{7}{16}$, 0.4375, 43.75%
d. $\frac{11}{16}$, 0.6875, 68.75%

____ 26. A bean bag is tossed randomly on the square below. Write *P*(not white) as a fraction, a decimal, and a percent.

Red	Blue	Blue	Red
White	Blue	Green	White
White	Green	Green	White
Red	Blue	Blue	Red

a. $\frac{3}{4}$, 0.75, 7.5%
b. $\frac{1}{2}$, 0.5, 50%
c. $\frac{3}{4}$, 0.75, 75%
d. $\frac{3}{5}$, 0.6, 60%

Glenn surveyed 40 of his classmates to determine their favorite cafeteria food. The results of his survey are shown in the table.

Favorite Food	Number of Students
Meatloaf	4
Tacos	5
Hamburgers	9
Pizza	18
Fish	4

____ 27. What is the probability of meatloaf being a student's favorite cafeteria food?
a. $\frac{1}{9}$
b. $\frac{1}{10}$
c. $\frac{3}{25}$
d. $\frac{4}{40}$

____ 28. Suppose there are 200 students in the cafeteria during lunch. How many students would you expect to choose hamburgers as their favorite cafeteria food?
a. 50
b. 9
c. 45
d. 36

____ 29. What is the probability of pizza being a student's favorite cafeteria food?
a. $\frac{18}{40}$
b. $\frac{5}{8}$
c. $\frac{3}{10}$
d. $\frac{9}{20}$

____ 30. Suppose there are 200 students in the cafeteria during lunch. How many students would you expect to choose pizza as their favorite cafeteria food?
a. 90
b. 104
c. 18
d. 72

____ 31. A number cube is rolled 50 times. A 1 was rolled 10 times, a 2 was rolled 8 times, a 3 was rolled 6 times, a 4 was rolled 9 times, a 5 was rolled 8 times, and a 6 was rolled 9 times. What is the experimental probability of rolling a 6?

a. $\frac{1}{6}$ c. $\frac{9}{50}$

b. $\frac{4}{25}$ d. $\frac{3}{25}$

____ 32. Two coins are tossed 50 times. The results are recorded in the following table.

Tails	Occurrence
0	5
1	38
2	7

What is the experimental probability of two tails?

a. $\frac{7}{50}$ c. $\frac{1}{10}$

b. $\frac{19}{25}$ d. 1

____ 33. Fill'er Up is having a promotion in which customers win a free 10 gallons of gas if there is a  printed on their receipt. Thus far, 50 of the first 80 customers have not won free gas. What is the experimental probability of winning 10 gallons of gas?

a. $\frac{5}{8}$ c. $\frac{3}{13}$

b. $\frac{3}{8}$ d. $\frac{1}{5}$

____ 34. At the annual Science Club Festival, 12 of the first 90 participants in throwing a baseball through a tire game won first prize, 22 won second prize, and 32 won third prize. What is the experimental probability of not winning any of the three prizes?

a. $\frac{4}{15}$ c. $\frac{16}{45}$

b. $\frac{11}{15}$ d. $\frac{17}{45}$

____ 35. A number cube is rolled 100 times. The results are recorded in the following table.

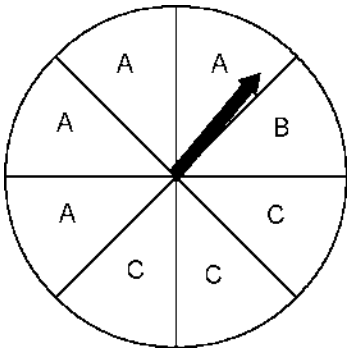
Number	Occurrence
1	14
2	22
3	15
4	13
5	20
6	16

What is the experimental probability of rolling a number greater than 4?

a. $\frac{9}{25}$ c. $\frac{51}{100}$

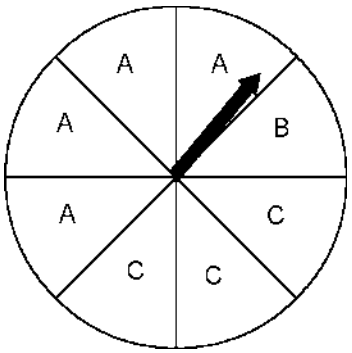
b. $\frac{13}{100}$ d. $\frac{1}{2}$

____ 36. A number cube is tossed and the spinner below is spun. Find *P*(greater than 4 and A).



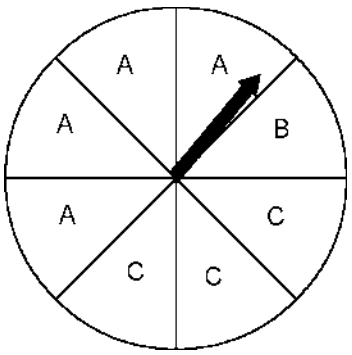
a. $\frac{1}{3}$
c. $\frac{2}{9}$
b. $\frac{4}{9}$
d. $\frac{1}{6}$

____ 37. A number cube is tossed and the spinner below is spun. Find *P*(odd and A).



a. $\frac{1}{6}$
c. $\frac{1}{4}$
b. $\frac{2}{9}$
d. $\frac{1}{5}$

____ 38. A number cube is tossed and the spinner below is spun. Find *P*(even and B).



a. $\frac{1}{8}$
c. $\frac{1}{6}$
b. $\frac{1}{16}$
d. $\frac{1}{10}$

____ 39. One bag contains 7 red chips and 5 yellow chips. Another bag contains 5 red chips and 2 yellow chips. A chip is drawn from each bag. What is the probability that both chips are yellow?

a. $\frac{25}{84}$
c. $\frac{1}{6}$
b. $\frac{5}{12}$
d. $\frac{5}{42}$

____ 40. What is the probability of tossing 4 coins and getting tails on all four?

a. $\frac{1}{16}$
c. $\frac{1}{32}$
b. $\frac{1}{8}$
d. $\frac{1}{2}$

Find the probability of the event.

____ 41. If four coins are tossed, what is the probability of getting four heads?

a. $\frac{1}{16}$
c. $\frac{1}{15}$
b. $\frac{1}{8}$
d. 1

____ 42. If four coins are tossed, what is the probability of getting three heads and one tail?

a. $\frac{3}{16}$
c. $\frac{4}{15}$
b. $\frac{1}{4}$
d. 0

____ 43. An 6-sided die is rolled four times. What is the probability of rolling a six on all four rolls?

a. $\frac{1}{648}$
c. $\frac{1}{324}$
b. $\frac{1}{1300}$
d. $\frac{1}{1296}$

____ 44. An 6-sided die is rolled two times. What is the probability of rolling a six on both rolls?

a. $\frac{1}{36}$
c. $\frac{1}{18}$
b. $\frac{1}{32}$
d. $\frac{1}{12}$

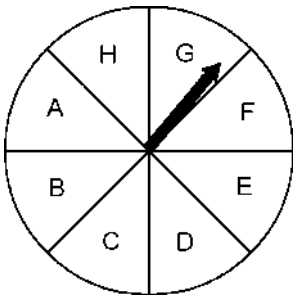
____ 45. A coin is tossed and a card is drawn from a standard deck of 52 cards. What is the probability of tossing heads and drawing a queen of hearts?

a. $\frac{1}{104}$
c. $\frac{1}{108}$
b. $\frac{1}{52}$
d. $\frac{1}{21}$

____ 46. A coin is tossed and a card is drawn from a standard deck of 52 cards. What is the probability of tossing heads and drawing a diamond?

a. $\frac{7}{52}$
c. $\frac{13}{108}$
b. $\frac{1}{8}$
d. $\frac{3}{26}$

A number cube is rolled and the spinner below is spun. Find the probability.



____ 47. P(4 and C)

a. $\frac{1}{48}$ c. $\frac{1}{42}$

b. $\frac{1}{14}$ d. 1

____ 48. P(an even number and a vowel)

a. $\frac{1}{6}$ c. $\frac{1}{10}$

b. $\frac{1}{8}$ d. 0

____ 49. P(a prime number and a consonant)

a. $\frac{2}{3}$ c. $\frac{3}{8}$

b. $\frac{1}{3}$ d. 0

____ 50. P(NOT 6 and NOT H)

a. $\frac{6}{7}$ c. 1

b. $\frac{35}{42}$ d. $\frac{35}{48}$

____ 51. P(less than 3 and B)

a. $\frac{1}{24}$ c. 1

b. $\frac{1}{12}$ d. $\frac{2}{11}$

There are 6 blue marbles, 7 black marbles, 4 orange marbles, and 3 green marbles in a bag. Once a marble is drawn, <u>it is replaced</u>. Find the probability of the outcome.

____ 52. a black then a blue marble

a. $\frac{3}{25}$ c. 1

b. $\frac{21}{200}$ d. $\frac{1}{3}$

____ 53. a blue marble, an orange marble, and then a green marble

a. 0 c. $\frac{6}{35}$

b. $\frac{9}{1000}$ d. $\frac{3}{500}$

____ 54. an orange then a green marble

a. $\frac{3}{100}$ c. $\frac{3}{25}$

b. 0 d. $\frac{1}{40}$

____ 55. two orange marbles in a row

a. $\frac{2}{25}$ c. $\frac{1}{25}$

b. 1 d. $\frac{2}{5}$

____ 56. two black marbles in a row

a. $\frac{21}{200}$ c. $\frac{7}{20}$

b. 0 d. $\frac{49}{400}$

Determine if each event is INDEPENDENT or DEPENDENT

____ 57. Rolling two number cubes

a. Independent Events b. Dependent Events

____ 58. Selecting playing cards from a deck without replacing

a. Independent Events b. Dependent Events

____ 59. Rolling a number cube, flipping a coin, picking a card

a. Independent Events b. Dependent Events

____ 60. Lining up 3 monkeys in Mrs. Jones' room

a. Independent Events b. Dependent Events

____ 61. Selecting two red skittles from a bag, if you eat them as you select

a. Independent Events b. Dependent Events

____ 62. Mr. Parietti needs two students to help him with a science demonstration for his class of 18 girls and 12 boys. He randomly chooses one student who comes to the front of the room. He then chooses a second student from those still seated.

a. Independent Events b. Dependent Events

There are 7 yellow, 6 blue, 9 red, and 3 green ribbons in a drawer. Once a ribbon is selected, it is not replaced. Find each probability.

____ 63. *P*(2 red ribbons)

a. $\frac{3}{25}$ c. $\frac{72}{625}$

b. $\frac{81}{625}$ d. $\frac{27}{200}$

____ 64. *P*(2 green ribbons)

a. $\frac{9}{625}$ c. $\frac{3}{200}$

b. $\frac{6}{625}$ d. $\frac{1}{100}$

____ 65. *P*(a yellow ribbon and then a blue ribbon)

a. $\frac{7}{100}$ c. $\frac{7}{120}$

b. $\frac{42}{625}$ d. $\frac{7}{125}$

There are 2 green marbles, 4 blue marbles, 1 red marble, and 8 yellow marbles in a bag. Once a marble is drawn, it is NOT replaced. Find the probability of the outcome.

____ 66. two green marbles in a row

a. $\frac{1}{105}$ c. $\frac{2}{225}$

b. $\frac{4}{225}$ d. $\frac{3}{29}$

____ 67. two yellow marbles in a row

a. $\frac{64}{225}$ c. $\frac{56}{225}$

b. $\frac{4}{15}$ d. $\frac{15}{29}$

____ 68. a blue marble then a green marble

a. $\frac{8}{225}$ c. $\frac{4}{105}$

b. $\frac{1}{35}$ d. $\frac{6}{29}$

____ 69. a yellow marble then a red marble

a. $\frac{8}{225}$ c. $\frac{9}{29}$

b. $\frac{3}{70}$ d. $\frac{4}{105}$

____ 70. two red marbles in a row

a. 0 c. $\frac{1}{29}$

b. $\frac{1}{15}$ d. $\frac{1}{225}$

A card is drawn from a deck of cards numbered one through twenty. The card is NOT replaced and another card is drawn. Find the probability of the outcome.

____ 71. a prime number is drawn and then a composite number

a. $\frac{4}{19}$ c. $\frac{19}{39}$

b. $\frac{22}{95}$ d. $\frac{11}{50}$

____ 72. two prime numbers are drawn in a row

a. $\frac{16}{95}$ c. $\frac{14}{95}$

b. $\frac{5}{13}$ d. $\frac{4}{25}$

____ 73. two even numbers are drawn in a row

a. $\frac{109}{380}$ c. $\frac{1}{4}$

b. $\frac{19}{39}$ d. $\frac{9}{38}$

____ 74. an even number and then an odd number

a. $\frac{5}{19}$ c. $\frac{1}{4}$

b. $\frac{20}{39}$ d. $\frac{5}{14}$

____ 75. a number greater than 8 and then a number less than 5

a. $\frac{16}{39}$ c. $\frac{3}{25}$

b. $\frac{12}{95}$ d. $\frac{9}{95}$

Accel Math 6/7 -Probability Study Guide
Answer Section

TRUE/FALSE

1. ANS: F
2. ANS: T
3. ANS: T
4. ANS: T
5. ANS: T

MULTIPLE CHOICE

6. ANS: B STA: 7.15
7. ANS: C STA: 7.15
8. ANS: D
9. ANS: A
10. ANS: B
11. ANS: C
12. ANS: D
13. ANS: A
14. ANS: B
15. ANS: A
16. ANS: D
17. ANS: B
18. ANS: A
19. ANS: B
20. ANS: C
21. ANS: A STA: 8.12
22. ANS: D STA: 8.12
23. ANS: D STA: 8.12
24. ANS: A STA: 8.12
25. ANS: B STA: 8.12
26. ANS: C STA: 8.12
27. ANS: B STA: 7.14 | 7.18
28. ANS: C STA: 7.14 | 7.18
29. ANS: D STA: 7.14 | 7.18
30. ANS: A STA: 7.14 | 7.18
31. ANS: C STA: 8.12
32. ANS: A STA: 8.12
33. ANS: B STA: 8.12
34. ANS: A STA: 8.12
35. ANS: A STA: 8.12
36. ANS: D STA: 8.12

37. ANS: C STA: 8.12
38. ANS: B STA: 8.12
39. ANS: D STA: 8.12
40. ANS: A STA: 8.12
41. ANS: A STA: VA 8.11
42. ANS: B STA: VA 8.11
43. ANS: D STA: VA 8.11
44. ANS: A STA: VA 8.11
45. ANS: A STA: VA 8.11
46. ANS: B STA: VA 8.11
47. ANS: A STA: VA 8.11
48. ANS: B STA: VA 8.11
49. ANS: C STA: VA 8.11
50. ANS: D STA: VA 8.11
51. ANS: A STA: VA 8.11
52. ANS: B STA: VA 8.11
53. ANS: B STA: VA 8.11
54. ANS: A STA: VA 8.11
55. ANS: C STA: VA 8.11
56. ANS: D STA: VA 8.11
57. ANS: A
58. ANS: B
59. ANS: A
60. ANS: B
61. ANS: B
62. ANS: B
63. ANS: A STA: 8.12
64. ANS: D STA: 8.12
65. ANS: A STA: 8.12
66. ANS: A STA: VA 8.17 | VA 8.11
67. ANS: B STA: VA 8.17 | VA 8.11
68. ANS: C STA: VA 8.17 | VA 8.11
69. ANS: D STA: VA 8.17 | VA 8.11
70. ANS: A STA: VA 8.17 | VA 8.11
71. ANS: B STA: VA 8.17 | VA 8.11
72. ANS: C STA: VA 8.17 | VA 8.11
73. ANS: D STA: VA 8.17 | VA 8.11
74. ANS: A STA: VA 8.17 | VA 8.11
75. ANS: B STA: VA 8.17 | VA 8.11