

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 probability 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

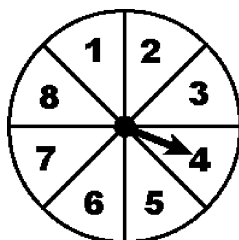
Find the number of possible outcomes for the situation.

- _____ 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 | c. 36 outcomes |
| b. 21 outcomes | d. 42 outcomes |
- _____ 13. A quiz has six true-false questions.
- | | |
|----------------|----------------|
| a. 64 outcomes | c. 26 outcomes |
| b. 12 outcomes | d. 62 outcomes |
- _____ 14. There are three answer choices for each of 6 multiple choice questions.
- | | |
|-----------------|----------------|
| a. 243 outcomes | c. 36 outcomes |
| b. 729 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 | c. 104 outcomes |
| b. 14 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. $P(\text{red})$
- | | |
|-------------------|-------------------|
| a. $\frac{3}{5}$ | c. $\frac{3}{10}$ |
| b. $\frac{8}{20}$ | d. $\frac{2}{5}$ |
- _____ 17. $P(\text{blue})$
- | | |
|------------------|-------------------|
| a. $\frac{1}{3}$ | c. $\frac{5}{20}$ |
| b. $\frac{1}{4}$ | d. $\frac{3}{4}$ |
- _____ 18. $P(\text{red or white})$
- | | |
|------------------|--------------------|
| a. $\frac{3}{5}$ | c. $\frac{12}{20}$ |
| b. $\frac{2}{5}$ | d. $\frac{1}{5}$ |
- _____ 19. $P(\text{blue or purple})$
- | | |
|------------------|-------------------|
| a. $\frac{1}{4}$ | c. $\frac{1}{5}$ |
| b. $\frac{2}{5}$ | d. $\frac{8}{20}$ |
- _____ 20. $P(\text{not white})$
- | | |
|------------------|------------------|
| a. $\frac{1}{5}$ | c. $\frac{4}{5}$ |
| b. $\frac{3}{5}$ | d. $\frac{3}{4}$ |



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

- _____ 21. $P(\text{odd})$.
 a. $\frac{1}{2}$ c. 1
 b. $\frac{1}{6}$ d. 0
- _____ 22. $P(\text{a prime number})$.
 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. $P(\text{not } 1)$.
 a. $\frac{7}{8}$ c. $\frac{1}{8}$
 b. 0 d. 1
- _____ 25. A bean bag is tossed randomly on the square below. Write $P(\text{green or red})$ 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 $P(\text{not white})$ 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, 75%
 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

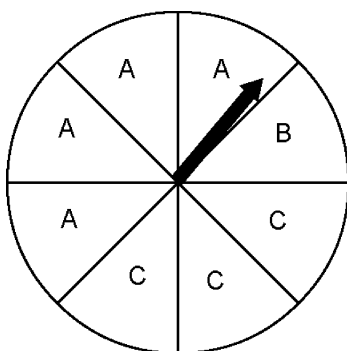
What is the experimental probability of rolling a number greater than 4?

a. $\frac{9}{25}$ c. $\frac{51}{100}$
b. $\frac{13}{100}$ d. $\frac{1}{2}$

Name: _____

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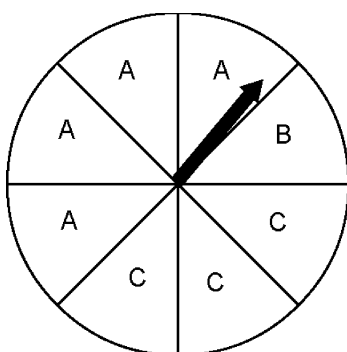
____ 36. A number cube is tossed and the spinner below is spun. Find $P(\text{greater than 4 and A})$.



- a. $\frac{1}{3}$
b. $\frac{4}{9}$

- c. $\frac{2}{9}$
d. $\frac{1}{6}$

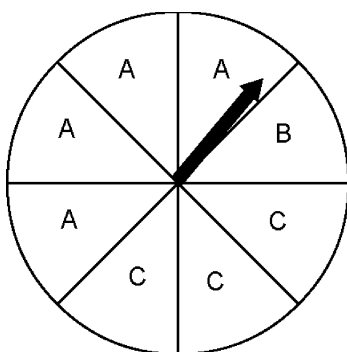
____ 37. A number cube is tossed and the spinner below is spun. Find $P(\text{odd and A})$.



- a. $\frac{1}{6}$
b. $\frac{2}{9}$

- c. $\frac{1}{4}$
d. $\frac{1}{5}$

____ 38. A number cube is tossed and the spinner below is spun. Find $P(\text{even and B})$.



- a. $\frac{1}{8}$
b. $\frac{1}{16}$

- c. $\frac{1}{6}$
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. $\frac{1}{12}$ |

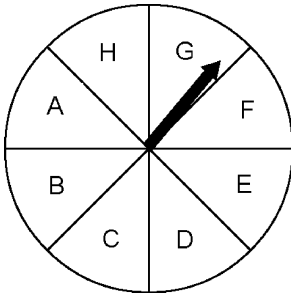
_____ 45. A coin is tossed and a card is drawn from a standard deck of 52 cards. What is the probability of tossing heads and drawing a queen of hearts?

- | | |
|--------------------|--------------------|
| 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. $P(4 \text{ and } C)$
- a. $\frac{1}{48}$ c. $\frac{1}{42}$
- b. $\frac{1}{14}$ d. 1
- _____ 48. $P(\text{an even number and a vowel})$
- a. $\frac{1}{6}$ c. $\frac{1}{10}$
- b. $\frac{1}{8}$ d. 0
- _____ 49. $P(\text{a prime number and a consonant})$
- a. $\frac{2}{3}$ c. $\frac{3}{8}$
- b. $\frac{1}{3}$ d. 0
- _____ 50. $P(\text{NOT 6 and NOT H})$
- a. $\frac{6}{7}$ c. 1
- b. $\frac{35}{42}$ d. $\frac{35}{48}$
- _____ 51. $P(\text{less than 3 and B})$
- 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, it is replaced. 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. $P(2 \text{ red ribbons})$

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

c. $\frac{72}{625}$

b. $\frac{81}{625}$

d. $\frac{27}{200}$

____ 64. $P(2 \text{ green ribbons})$

a. $\frac{9}{625}$

c. $\frac{3}{200}$

b. $\frac{6}{625}$

d. $\frac{1}{100}$

_____ 65. $P(\text{a yellow ribbon and then a blue ribbon})$

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. $\frac{9}{38}$

Name: _____

ID: A

_____ 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