**MATH 7 Unit 6 Probability Name**

**Study Guide Date Per**

1. Explain the difference between theoretical and experimental probability.
2. The probability of a given event can be represented as a ratio between what two numbers?
3. Fill in the blank: As the number of trials gets \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the experimental probability of an event approaches the theoretical probability of the event.
4. A bag contains 5 yellow, 6 green, 10 red, and 8 orange and 3 white jelly beans. Find each probability.

P(green) P(red or yellow) P(not red)

1. Using the spinner below, what is P(odd number)?



**15**

**12**

**10**

**111**

**7**

**6**

**1**

**2**

**3**

**5**

1. What is the probability of tossing a coin and getting tails?

What is the expected probability of tails if you toss the coin 60 times?

What is the expected probability of tails if you toss the coin 150 times?

1. If you spin the spinner shown, what is P(even)

P(odd)

**2**

**1**

P(6)

**5**

**4**

**3**

**5**

 P(1 or 2 or 3)

1. Draw a tree diagram to show the possible outcomes of spinning the spinner below and then flipping a coin.

**Green**

**Red**

**Orange**

**Yellow**

**Pink**

**Blue**

1. Three cards labeled A, B, and C are placed in a Box 1. Three cards labeled E, H, and U are placed in a Box 2. A card is randomly drawn from each bag.

What is the probability that both cards drawn are vowels?

1. If 9 out of 15 people like to vacation at the beach rather than go to the mountains, how many people out of 120 would you predict will prefer going to the beach?
2. You have a deck of 8 red cards, 3 blue cards, and 4 black cards. If you randomly select a card and then replace it 210 times, how many times would you expect to select a blue card?
3. A bag contains black, white, gray, red, and blue marbles. Each of the 20 students in class is asked to reach in the bag and choose a marble. The color is recorded and the marble is replaced in the bag before the next draw. The results are shown below.

|  |  |
| --- | --- |
| Marbles | Number of DrawsBased on these results, what is the best prediction of the number of black and red marbles in the bag if it contains 80 marbles?  |
| Black | 4 |
| White | 7 |
| Gray | 2 |
| Red | 6 |
| Blue | 1 |

1. A bag contains green, orange, red, and yellow M&Ms.  of the bag contains red and orange candies and  of the bag is green M&Ms. What is the probability of picking out a yellow M&M from this bag?
2. Draw the tree diagram for tossing a coin 3 times. Find each probability:

P(3 heads)

P(1 tails 2 heads)

1. At our school,  of all students have a dog and  of all students are only children. If a student is chosen at random, what is the probability that he or she will have a dog and be an only child?
2. You have 3 different types of bread, turkey or ham, and 4 desserts from which to choose for your lunch. How many combinations of foods are there?
3. Shara has 5 different color markers –blue, green, red, orange, and black. She randomly chose a marker 20 times, and chose the blue marker 5 times. How does the experimental probability of choosing the blue marker compare to the theoretical probability?

|  |  |
| --- | --- |
| A. | The experimental and theoretical probability is the same. |
| B. | The experimental probability is less than the theoretical probability. |
| C. | The experimental probability is greater than the theoretical probability. |
| D. | Neither the experimental nor theoretical probability can be determined. |

1. Austin rolls a number cube 25 times. On five of the rolls, he gets 4’s. Compare the experimental probability to the theoretical probability?

|  |  |
| --- | --- |
| A. | The experimental and theoretical probability is the same. |
| B. | The experimental probability is less than the theoretical probability. |
| C. | The experimental probability is greater than the theoretical probability. |
| D. | Neither the experimental nor theoretical probability can be determined. |

1. In a bag of marbles, the distribution of colors is shown in the table below. Fill in the missing numbers for each color marble. Then in the last column, rank the colors in order from most likely (1) to least likely (4).

|  |  |  |
| --- | --- | --- |
| Color | Distribution | Rank |
|  | Fraction | Decimal | Percent |  |
| Orange |  |  | 35% |  |
| Blue |  |  |  |  |
| Multi-colored |  | .15 |  |  |
| White |  |  |  |  |