Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Class:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Probability – Complement

**Vocabulary:**

Complement – set of all outcomes in the sample space that are not included in the event

***An Event and Its Complement***

**The sum of the probabilities of an event and its complement equals 1:**

**P(event) + P(complement) = 1**

**Model (Complement of an event) – p 370**

**There are 2 red jacks in a standard deck of 52 cards. What is the probability of not getting a red jack if you select one card at random?**

**P(red jack) + P(not a red jack) = 1**

**2/52 + P(not a red jack) = 1**

**2/52 + P(not a red jack) = 52/52**

**-2/52 -2/52**

**P(not a red jack) = 50/52 = 25/26**

**The probability that you will not draw a red jack is 25/26. It is likely that you will not select a red jack.**

1. A jar contains 8 marbles marked with the numbers 1 through 8. You pick a marble at random. What is the probability of not picking the marble marked with the number 5?
2. You roll a standard number cube. Use the probability of rolling an even number to find the probability of rolling an odd number.
3. What is the probability of not rolling a 5 on a standard number cube?
4. A spinner has 3 equal sections that are red, white, and blue. What is the probability of not landing on blue?
5. A spinner has 5 equal sections marked 1 through 5. What is the probability of not landing on 4?
6. There are 4 queens in a standard deck of 52 cards. You pick one card at random. What is the probability of not picking a queen?

**Describing Events**

**Impossible Unlikely Equally Likely Likely Certain**

**0 🡨 25% 🡪 50% 🡨75% 🡪 100**

**Examples:**

1. **You roll a six-sided number cube and the number is 1 or greater: *CERTAIN***
2. **You roll two number cubes and the sum of the numbers is 3: *UNLIKELY***
3. **A bowl contains disks marked with the number 1 through 10. You close your eyes and select a disk at random. You pick an odd number: *EQUALLY LIKELY***
4. **A spinner has 8 equal sections marked 0 through 7. You spin and land on a prime number: *EQUALLY LIKELY***

**Practice (describing events) – Using the scale determine from impossible to certain the event.**

1. **A hat contains pieces of paper marked with the number 1 through 16. Tell whether picking an even number is impossible, unlikely, equally likely, likely, or certain. Tell whether the probability is 0, close to 0, ½ , close to 1, or 1.**
2. **Randomly picking a green face card from a standard deck of playing cards**
3. **Randomly picking a red face card from a standard deck of play cards**
4. **Picking a number that are multiplies of 3 from a jar with papers labeled from 1 to 12**
5. **Picking a number that is divisible by 5 from a jar with paper labeled from 1 to 12**