**Unit 6– Probability**

Independent Events

By the end of this lesson you will be able to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

What is Probability?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

What three ways can probability can be represented?

1) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 3) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What values represent Certain? \_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_

What values represent As Likely As Not? \_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_

What values represent Impossible? \_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_

What are independent events? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

How is rolling a die an independent event?

How is flipping a coin an independent event?

**Example 1: Using an Area Model**

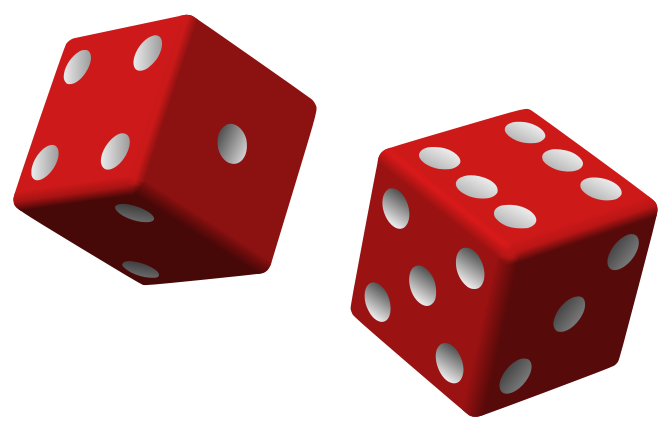
What is the probability that you can roll a \_\_\_\_\_\_ on a die and flip \_\_\_\_\_\_\_\_ up on a coin?



What is the ratio we use for probability?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Outcomes for the 2nd event



What is the probability of the events occurring together?

As a fraction? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

As a decimal? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

As a percent? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

How many outcomes do the two events have together?

Outcomes for the 1st event

**Example 2: Using Multiplication**

What is the probability that you can flip \_\_\_\_\_\_\_\_\_\_\_ up on a coin and roll a \_\_\_\_\_\_\_ on a 12-sided die?

Outcomes for the 2nd event



Outcomes for the 1st event

What is the probability for the first event to occur? \_\_\_\_\_\_\_\_\_\_\_\_ 2nd Event to occur? \_\_\_\_\_\_\_\_\_\_\_

What operation will you use to determine the probability of these events occurring together? \_\_\_\_\_\_\_\_

What is the probability for these events to occur together?

As a fraction? \_\_\_\_\_\_\_\_\_ As a decimal? \_\_\_\_\_\_\_\_\_ As a percent? \_\_\_\_\_\_\_\_

**Example 3: With Replacement**

What is the probability that you can pick a red card put it back in the deck and pick the black card?

What is the probability for the first event to occur? \_\_\_\_\_\_\_\_\_\_\_\_ 2nd Event to occur? \_\_\_\_\_\_\_\_\_\_\_

What operation will you use to determine the probability of these events occurring together? \_\_\_\_\_\_\_\_

What is the probability for these events to occur together?

As a fraction? \_\_\_\_\_\_\_\_\_ As a decimal? \_\_\_\_\_\_\_\_\_ As a percent? \_\_\_\_\_\_\_\_

**Example 4: With Replacement**

What is the probability that you can pick the Ace of Hearts, put it back in the deck, and pick the King of Clubs?

What is the probability for the first event to occur? \_\_\_\_\_\_\_\_\_\_\_\_ 2nd Event to occur? \_\_\_\_\_\_\_\_\_\_\_

What operation will you use to determine the probability of these events occurring together? \_\_\_\_\_\_\_\_

What is the probability for these events to occur together?

As a fraction? \_\_\_\_\_\_\_\_\_ As a decimal? \_\_\_\_\_\_\_\_\_ As a percent? \_\_\_\_\_\_\_\_

**Math 7 Unit – Probability**

**Your Turn to Practice.** [fill in the missing information for each problem using the video]

Find the probability of the events. Write as a fraction, decimal and a percent. Round to the nearest thousandths when necessary.

1. Probability of rolling an \_\_\_\_\_\_\_ number on a standard die and flipping a \_\_\_\_\_\_\_\_\_.
2. Probability of choosing two vowels, with replacement, from the word \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Probability of picking an \_\_\_\_\_\_\_ number, putting it back, and then picking a multiple of \_\_\_\_\_, from the numbers \_\_\_\_\_\_\_\_\_\_\_\_.
4. Probability of rolling a die three times, all coming up \_\_\_\_\_\_\_\_\_ numbers.
5. Probability of picking a red gumball, replace it and then choose a blue gumball, from \_\_\_\_\_\_ red and \_\_\_\_\_\_ blue gumballs.