**Probabilities of Compound Events!**

We will be discussing *independent* events, *dependent* events, and *mutually exclusive* events!

First, we must know what makes events independent…

**Independent Events:** Events that are \_\_\_\_\_\_ affected by one another!

*2 Examples:*

* Rolling a \_\_\_\_\_ and then choosing a \_\_\_\_\_\_\_.
* Choosing a marble from a bag, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_it, and then choosing again.

*What is the probability of choosing an Ace from a deck of cards and then rolling an odd number on a 6-sided die?*

 Long Way Shortcut!

How many Aces are there? \_\_\_\_ Probability of choosing an Ace? \_\_\_

How many odds on a die? \_\_\_\_ Probability of rolling an odd? \_\_\_

\*How many Ace/odd outcomes? \_\_\_\_\_\_\_\_\_\_

 Probability of choosing an Ace and

How many cards exist? \_\_\_\_ then rolling an odd:

How many numbers on a die? \_\_\_\_

\*How many possible outcomes? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Probability:

Whether events are **independent** or **dependent**, we can \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ their probabilities!

*Symbols*: P(A and B) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*In a bag, there are 6 green marbles, 5 blue, 8 yellow, and 1 black. We are going to pick a marble, replace that marble, and then pick again! Find the following probabilities…*

P(green then yellow) P(black then green)

P(2 blue in a row) P(2 yellow in a row)

**Dependent Events:** Events that \_\_\_\_\_\_ affected by one another!

 *Example:*

* *Choosing a card, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ it, and then choosing another!*

*In a bag, there are 6 green marbles, 5 blue, 8 yellow, and 1 black. We are going to pick a marble, NOT replace that marble, and then pick again! Find the following probabilities…*

*Example: P(2 green in a row):*



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 *So, P(2 green in a row) =* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

P(green then yellow) P(black then green)

P(2 blue in a row) P(2 yellow in a row)

**Mutually Exclusive Events:** One event happening, \_\_\_\_ another event happening!

 *Example:*

* Rolling a die and getting a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

For *mutually exclusive* events, we simply \_\_\_\_\_ their probabilities!

Symbols: P(A or B) = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*We are rolling a 6-sided die. Find the following probabilities…*

P(2 or 5) P(3 or an even number)



