Basic Probability

General Probability Fraction:

$$P\left(Event\right)= \frac{Desired Outcomes}{Total Outcomes}$$

Union Symbol Intersection Symbol

 

“or” “and”

Equations

Mutually Exclusive (Cannot happen at the same time)

**P(A ∪ B) = P(A) + P(B)**

Mutually Inclusive (Can happen at the same time)

**P(A ∪ B) = P(A) + P(B) − P(A ∩ B)**

Notes

**Coin Toss**

Two sides, heads and tails

Equal odds

Can easily be drawn as a factor tree to find out results

$$$$

**Coin Toss**

Two sides, heads and tails

Equal odds

Can easily be drawn as a factor tree to find out results

**Coin Toss**

Two sides, heads and tails

Equal odds

Can easily be drawn as a factor tree to find out results

**Coin Toss**

Two sides, heads and tails

Equal odds

Can easily be drawn as a factor tree to find out results

**Compound Events: Independent vs Dependent Events**

**Compound Events**

Multiple events that are connected to find combined probability

For compound events we always multiply fractions.



**Independent Events**

Compound events where the outcome of events have no impact on each other.

Common Examples are dice and coins and picking from a group **WITH REPLACEMENT**

**P(A and B) = P(A) \* P(B)**

 

**Dependent Events**

Compound events where the outcome of events influence each other.

Almost always from a group **WITHOUT REPLACEMENT**

**P(A and B) = P(A) \* P(B|A)**





Quick Facts

52 Total Cards

26 Red, 26 Black

4 Suits: Clubs, Diamonds, Hearts and Spades

13 Cards in each suit

3 Face cards Jack, Queen, King in each suit, 12 total