PROBABILITY

PRAXIS FLASHCARD #65

PROBABILITY

Probability is the ratio of how likely a specific event is to happen when compared to all possibilities of events that might happen. Probability is most often written as a fraction, but it may also be written as a decimal or a percentage. The numerator of the fraction tells how many possibilities of a specific event, the denominator tells how many **total** possibilities. For example, in a deck of face cards, the probability of drawing a heart is 13 out of 52 = 13/52 but simplified to 1/4.

PRAXIS FLASHCARD #66

PROBABILITY OF MULTIPLE EVENTS

The **probability of multiple events** has different calculations depending on whether the events are **independent (OR)** or **dependent (AND)** and whether the events are mutually exclusive (have possibilities in common)

- Independent, mutually exclusive → add
- Independent, non-exclusive → add then subtract the events they have in common
- Dependent → multiply (first event doesn't affect probability of the second event)
- Dependent → multiply first probability and the **conditional** second probability

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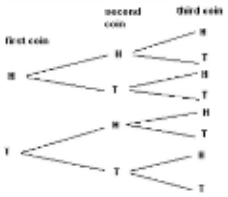
PRAXIS FLASHCARD #285 & #383

FUNDAMENTAL COUNTING PRINCIPLE



The **Fundamental Counting Principle**: If there are *m* ways for one event to occur and *n* ways for another event to occur, there are *m x n* ways for both to occur. These events (in a sample space) are listed using a tree diagram or a table. A **tree diagram** is a graphic organizer that lists all possibilities of a sequence of events in a systematic way. A tree diagram is used in determining probability – it is a way to calculate the total possible outcomes and view each possible scenario.

PRAXIS FLASHCARD #303

ODDS (STATISTICAL)

Odds and probability are related concepts. With probability, you compare the number of favorable outcomes to the *total possible* number of outcomes. With odds, you compare the number of favorable outcomes to the *number of remaining* (unfavorable) outcomes. If you have a box with 2 red balls and 3 blue balls, the probability of randomly picking a red ball is 2 out of 5 or 2/5. The odds of randomly picking a red ball are 2 for and 3 against, or 2:3

PRAXIS FLASHCARD #283

FACTORIAL

Factorial is a unary operation. The exclamation point is the symbol used to denote factorial. Factorials are most commonly used in permutations and combinations. To find the factorial of a number *n*, multiply all the numbers from 1 to the number *n*. By convention, 0! = 1. Example: $6! = 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$

PRAXIS FLASHCARD #67

COMBINATIONS

A **combination** is a way of selecting several things out of a larger group, where order does not matter. The formula used is $\frac{n!}{k!(n-k)!}$, where ***n*** is the number of items selected and ***k*** is the number of items in the larger group

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PRAXIS FLASHCARD #68

PERMUTATIONS

A **permutation** is a way of selecting several things out of a larger group, where order does matter. The formula used is $\frac{n!}{(n-k)!}$, where ***n*** is the number of items selected and ***k*** is the number of items in the larger group

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