

1. Binomial Coefficient	For non-negative integers n and r , with $n \geq r$, " n above r " is $n!/(n!(n-r)!)$
2. Binomial Theorem	$(a + b)^n = \sum_{k=0}^n {}_n C_k a^{n-k} b^k$ <p>For any positive integer n, $(a+b)^n = \sum_{r=0}^n {}_n C_r (a^{n-r} b^r)$</p>
3. Combination	$n!/(n-r)!r!$ Order doesn't matter
4. Discrete Random Variable	Variable that can take on a countable number of possible values along a specified interval
5. Empirical Probability	$P(\text{event}) = (\text{Number of successes}) \div (\text{Number of trials})$
6. Expected Value	The sum of each outcome's value multiplied by its probability.
7. Experiment	Any occurrence for which the outcome is uncertain.
8. Fair	When all possible outcomes have an equal probability of occurring.
9. Fundamental Counting Principle	The number of ways in which a series of successive things can occur is found by multiplying the number of ways in which each thing can occur.
10. Independent Events	Have no effect on one another. $P(A \text{ and } B) = P(A) \times P(B)$
11. Mutually Exclusive Events	Two or more events are mutually exclusive if they cannot occur at the same time.
12. Pascal's Triangle	An array of numbers showing coefficients of the terms in the expansions of $(a+b)^n$
13. Permutations	$n!/(n-r)!$ Order matters
14. Random Event	An event with no predetermined pattern or bias toward one outcome or another.
15. Sample Space	The set of all possible outcomes of a probability experiment.
16. Support	(a.k.a. Space) The set of all possible values of the random variable.
17. Theoretical Probability	$P(\text{event}) = (\text{Number of favorable outcomes}) \div (\text{Total possible outcomes})$
18. Tree Diagram	A diagram with branches showing the possible combinations of items.