

**Alg2/Trig**  
**Review of Ch7: Probability**

**Permutations(EX2):** Number of arrangements when order is important.  ${}_n P_r = \frac{n!}{(n-r)!}$

**Combinations (EX1):** Number of arrangements when order isn't important.  ${}_n C_r = \frac{n!}{(n-r)!r!}$

**Probability(EX3):** A number between 0 and 1 that is the measure of how likely an event is to occur.

$$P = \frac{\text{favorable outcomes}}{\text{possible outcomes}}$$

**Factorial (EX17):**  $0! = 1$

“and” – multiply

“or” - add

**Conditional Probability(EX4a, EX7):** The probability that event B occurs given that event A has already occurred is called

the conditional probability of B given that event A has already occurred.  $P(B|A) = \frac{P(A \text{ and } B)}{P(A)}$

**Independent Events(EX4b, EX5, EX11):** When the occurrence of event A doesn't affect the probability of B.

$$P(A \text{ and } B) = P(A) \cdot P(B)$$

**Dependent Events(EX12):** When the occurrence of event A affects the probability of B.

$$P(A \text{ and } B) = P(A) \cdot P(B|A)$$

**Test of Independence(EX10):** Iff  $P(B) = P(B|A)$  then events A and B are independent.

**Two-Way Tables(EX9):** These summarize the results of two events.

**Relative Frequencies(EX8):** Shows the probabilities of each cell in the two-way table instead of the counts of each cell's probability.

**Mutually Exclusive Events (no overlap)(EX13):** When two events can't occur in the same trial.

$$P(A \text{ or } B) = P(A) + P(B)$$

**Inclusive Events (Overlapping Events)(EX14):** Events that have at least 1 common outcome.

$$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$$

**Venn Diagram (EX16):** A diagram showing sets and their logical relationships between them. Convenient to use when there are overlapping events.

**Complement of an Event(EX6, EX15):** All outcomes in the sample space that are not in an event E, denoted  $\bar{E}$ .

$$P(\bar{E}) = 1 - P(E)$$