**Probability 1**

* **The Fundamental Principal of Counting**.
* **Factorials**:

5! = 5 x 4 x 3 x 2 x 1 = 120

* **Arrangements**:

nPr = $\frac{n!}{\left(n-r\right)!}$

* **Choosing**:

nCr = $\frac{n!}{r!\left(n-r\right)!}$

* **Mutually Exclusive Events**:

E$∩$F = Ø P(E$∪$F) = P(E) + P(F)

**Note**: Non Mutually Exclusive events:

P(E$∪$F) = P(E) + P(F) – P(E$∩$F)

* **Conditional probability**:

P(A|B) = $\frac{P(A∩B)}{P(B)}$ or $\frac{\#(A∩B)}{\#B}$

**Probability 2**

* **Independent Events**:

P(A|B) = P(A)

P(B|A) = P(B)

P(A$∩$B) = P(A)P(B)

* **Solve problems involving probability using**:

Tree Diagrams

Venn Diagrams

Multiplying and/or Adding probabilities

Two-Way Tables

nCr

* **Expected Value**:

E(x) = $\sum\_{}^{}(x ×P\left(x\right))$

* **Binomial Distribution, Bernoulli Trials**:

 $\left(\begin{matrix}n\\r\end{matrix}\right)p^{r}q^{n-r}$ Page 33 Tables

 

Also: The Binomial Distribution Extended.

* **The Normal Distribution**:

 $Z= \frac{x- μ}{σ}$ Page 34 Tables