EXAM 1 FORMULA SHEET

$\bar{x} = (\Sigma x_i)/n$ Q_1 Position = (.25)*(n+1) Q_2 Position = (.50)*(n+1) Q_3 Position = (.75)*(n+1)

$s^2 = 1/(n-1)*[\Sigma x^2_i - 1/n*(\Sigma x_i)^2]$ St.Dev. = $\sqrt{Var}$ Range = Max - Min IQR = $Q_3 - Q_1$

CV = (s / $\bar{x}$)*100 Chebyshev's Rule: at least [100*(1-1/z^2)]% where z = the number of st. dev.

Cov(X,Y) = $s_{xy} = 1/(n-1)*[\Sigma x_i y_i - 1/n*(\Sigma x_i)*(\Sigma y_i)]$ $r = s_{xy}/[s_x*s_y]$

P(A) = 1 - $P(A^c)$ P(A or B) = P(A) + P(B) - P(A and B) P(B|A) = P(A and B)/P(A)

P(A and B) = P(B|A)*P(A) Two events are mutually exclusive if P(A and B) = 0

Two events are independent if P(B|A) = P(B)

$E(X) = \Sigma\{x_i*P(X=x_i)\}$ $Var(X) = [\Sigma\{x^2_i *P(X=x_i)\}] - [E(X)]^2$

n! = n*(n-1) *(n-2)*....*1 ${}_nC_x = n!/[x!*(n-x)!]$

Binomial Distribution: ${}_nC_x * p^x * (1-p)^{(n-x)}$ E(X)=n*p Var(X)=n*p*(1-p)