Formulas to be provided.

It will be a handout or link!

$$s^2 = \frac{\sum_{i=1}^{n}(x_i - \overline{x})^2}{n-1}$$

$$s = \sqrt{s^2}$$

$${}_nP_n = n(n-1)(n-2)...3\cdot 2\cdot 1 = n!$$

$${}_nP_r = \frac{n!}{(n-r)!}$$

$$P = \frac{n!}{r!s!t!}$$

$${}_nC_r = \binom{n}{r} = \frac{n!}{r!(n-r)!}$$

$$\left(A \cup B\right)^c = A^c \cap B^c$$

$$P(E) = \frac{n(E)}{n(S)}$$

$$P(E^c) = 1 - P(E)$$

$$P\left(E \cup F\right) = P\left(E\right) + P\left(F\right) - P\left(E \cap F\right)$$

$$P(E \mid F) = \frac{P(E \cap F)}{P(F)}$$

$$\mu_X = E[X] = x_1 p_1 + x_2 p_2 + \cdots + x_n p_n$$

$$\sigma_X^2 = Var[X] = \left(x_1 - \mu_X\right)^2 p_1 + \left(x_2 - \mu_X\right)^2 p_2 + \cdots + \left(x_n - \mu_X\right)^2 p_n$$

$$= \sum \left(x_i - \mu_X\right)^2 p_i$$

$$\sigma_X^2 = Var[X] = E[X^2] - \left(E[X]\right)^2$$

$$E[W] = E[aX + b] = aE[X] + b$$

$$\sigma_W^2 = Var[W] = Var[aX + b] = a^2 Var[X]$$

$$E[X+Y]=E[X]+E[Y]$$

$$\sigma_{X+Y}^{2}=Var[X+Y]=Var[X]+Var[Y]$$

$$E[X-Y]=E[X-Y]=E[X]-E[Y]$$

$$\sigma_{X-Y}^{2}=Var[X-Y]=Var[X]+Var[Y]$$

$$P(X=k)=\binom{n}{k}p^{k}(1-p)^{n-k}$$

$$P(X\geq k)=1-P(X\leq(k-1))$$

$$\mu=E\left[X\right]=np$$

$$\sigma^{2}=np(1-p)$$

$$P(X=n)=(1-p)^{n-1}p$$

$$P(X>n)=(1-p)^{n}$$

$$E[X]=\mu=\frac{1}{p}$$

$$\sigma^{2}=\frac{1-p}{p^{2}}$$