Sample Median – middle# or avg of two midlle#s

Mean→ x =(x1+…xn)/n

-

x

Sample Variance→ s2 = [∑(xi - )2]/n-1 = SXX/n-1

Sample Standard Variance→ s=√(s2)

P(AΠB) = P(A)P(B)

P(A U B) = P(A) + P(B) – P(A Π B)

U

U

U

U

U

P(AUBUC) = P(A) + P(B) + P(B) – P(A B) – P(A C) – P(B C) + P(A B C)

Permutations Pk,n= n!/(n-k)! where n is the group size and k is the subset size

n

k

Combinations Ck,n=( ) [“n choose k”] = Pk,n/k! = n!/[k!(n-k)!]

P(A|B) is the conditional prob of A given that event B occurred

U

P(A|B)= P(A B)

P(B)

Quadratic –b+/-√(b2-4ac)

2a

Mean Value E(X)=np where n is sample size and p is percentage of sample

Standard Deviation SD(X)=√(np(1-p)

PMF ->b(x;n,p) = (n)px(1-p)n-x for x=0,1…n

(x)

For X~Bin(n,p),cdf is B(x;n,p)

For nb(x;r,p)

E(X)=r(1-p) V(X)=σ2 = r(1-p)=np(1-p)

P p2

Poisson distribution

b(x;n,p) -> P(x;μ)=e-μ▪μx

x!

μ=np

probability distribution -> pdf -> P(a≤X≤b)=∫ba f(x)dx

uniform distribution f(x;A,B)=1/(B-A) for A≤X≤B

cumulative distribution -> cdf -> F(x)=P(X≤x)=∫b-∞ f(y)dy

expected/mean value = μx=E(X)=∫∞-∞ x ▪ f(x)dx

variance of continuous random variable X with pdf f(x) and mean value μ is:

σ2x=V(X)=∫∞-∞ (x-μ)2 ▪ f(x)dx = E[(X-μ)2]

SD of X is σX=√V(X)

V(X)=E(X2)-[E(X)]2

If X has a normal distribution with mean μ and SD σ the Z= (X-μ)/σ

P(a≤X≤b)=φ[(b-μ)/σ] - φ[(a-μ)/σ]

P(X≤A)= φ[(a-μ)/σ] P(X≥b)=1- φ[(b-μ)/σ]

P(X≤x)=B(x,n,p)=φ[(x+.5-np)/(√(npq))]

Exponential distribution

F(x;λ)=λe-λx for x≥0

E(X+Y)=∑(x+y)▪p(x,y)=E(X)+E(Y)

E(X)=(x1▪(∑(x,y))+(x2▪(x,y))…(xn▪(x,y))