**ASSIGNMENT 4**

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#Q1

x1<-c(0,1,2,3,4)

p1<-c(0.41,0.37,0.16,0.05,0.01)

weighted.mean(x1,p1)

#Q2

integrate(function(t) {(0.1)\*(exp(-0.1\*t))}, lower = 0, upper = Inf)

#Q3

x3<-c(0,1,2,3)

p3<-c(0.1,0.2,0.2,0.5)

X3<-weighted.mean(x3,p3)

print((X3\*12)-18+((3-X3)\*2))

#Q4

f4\_1<-function(x){0.5\*exp(-abs(x))}

f4\_2<-function(x){0.5\*exp(-abs(x^2))}

moment1<-integrate(f4\_1,lower=1, upper=10)

moment2<-integrate(f4\_2,lower=1, upper=10)

mean4<-moment1$value

var4<-moment2$value-(moment1$value\*\*2)

print(mean4)

print(var4)

#Q5

f5<-function(x){0.75\*((0.25)\*\*(x-1))}

yf <- function(y){(3/4)\*(1/4)^(sqrt(y)-1)}

x<-as.integer(readline(prompt="Enter the value of x"))

y = x^2

proby <- yf(y)

print(proby)

#expected value and variance of Y for X = 1,2,3,4,5

x<- c(1,2,3,4,5)

y<-x^2

proby <- yf(y)

print(proby)

#Expected value

ExpVal <- sum(y\*proby)

print(ExpVal)

#Variance = E((y-E(y))^2)

M <- ExpVal

y1 <- (y-M)^2

proby1 <- yf(y1)

print(proby1)

VarVal <- sum(y1\*proby1)

print(VarVal)