```
R version 4.0.2 (2020-06-22) -- "Taking Off Again"
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Platform: x86_64-w64-mingw32/x64 (64-bit)

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  Natural language support but running in an English locale

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Type 'demo()' for some demos, 'help()' for on-line help, or
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Type 'q()' to quit R.

[Previously saved workspace restored]

>   #Experiment-3
>   #date-16/11/20
>   #name-Amlan Nayak
>   #Registration no.-19BCD7143
>   #SlotLab-L1
>   #Applied Statistics
>   x=c(1860,1870,1880,1890,1900,1910,1920,1930,1940,1950)
>   agw=c(6.2,6.9,8.6,9.9,10.9,11.6,11.4,10.5,8.8,6.8)
>   nagw=c(4.3,6.1,8.8,13.4,18.2,25.4,31.0,38.4,42.9,52.2)
>   workinfo=data.frame(x,agw,nagw)
>   workinfo
      x  agw nagw
1  1860  6.2  4.3
2  1870  6.9  6.1
3  1880  8.6  8.8
4  1890  9.9 13.4
5  1900 10.9 18.2
6  1910 11.6 25.4
7  1920 11.4 31.0
8  1930 10.5 38.4
9  1940  8.8 42.9
10 1950  6.8 52.2
> plot(x,agw,xlab="year",ylab="No. of workers(in mill.",type="b")
> text(1900,10,labels="Agricultural",srt=15,col=c("blue"))
>   lines(x,nagw,xlab="year",ylab="No. of Non-Agri workers",type="l")
> text(1890,10,labels="Non-Agricultural",srt=45,col=c("green"))
> text(1890,10,labels="Non-Agricultural",srt=70,col=c("green"))

> text(1880,15,labels="Non-Agricultural",srt=45,col=c("green"))
> text(1880,10,labels="Non-Agricultural",srt=70,col=c("green"))
> f<-function(x) 3/x^4
> g<-function(x) x*f(x)
> h<-function(x) x^2*f(x)
>


> Ex<-integrate(g,lower=1,upper=Inf)$value
> Ex
[1] 1.5
> Varx<-integrate(h,lower=1,upper=Inf)$value-Ex^2
> Varx
[1] 0.75
> #X is a discrete random variable Find the
> #Expectation of the random variable for the
> #probability distribution
> #x:1 2 3 4 5
> #f(x):0.2 0.35 0.25 0.15 0.05
> x=c(1,2,3,4,5)
> f=c(0.2,0.35,0.25,0.15,0.05)
> x*f
[1] 0.20 0.70 0.75 0.60 0.25
> Ex<-sum(x*f)
> Ex
[1] 2.5
```

```
> x*x
[1]  1  4  9 16 25
> Ex2<-x*x*f
> Ex2
[1] 0.20 1.40 2.25 2.40 1.25
> Varx<-Ex2-Ex^2
> Varx
[1] -6.05 -4.85 -4.00 -3.85 -5.00
> Ex2<-sum(x*x*f)
> Ex2
[1] 7.5
> Varx<-Ex2-Ex^2
> Varx
[1] 1.25
>
```