

ASSIGNMENT – 5

Probability and Statistics

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COE11

```
1 #Q1
2 punif(45,min=0,max=60, lower.tail=FALSE)
3 punif(30,min=0,max=60, lower.tail=TRUE)-punif(20,min=0,max=60,lower.tail=TRUE)
4
5
6 #Q2
7 dexp(3,1/2)
8
9
10 x=seq(0,5,0.001)
11 y=dexp(x,1/2)
12 plot(y)
13
14
15 pexp(3,rate=1/2)
16
17
18 x=seq(0,5,0.001)
19 y=pexp(x,1/2)
20 plot(y)
21
22
23 x=rexp(1000,rate=1/2)
24 plot(x)
25 plot(density(x))
26
27
28 #Q3
29 dgamma(3,2,1/3)
30 pgamma(1,2,1/3, lower.tail=FALSE)
31 qgamma(0.7,2,1/3, lower.tail=TRUE)
32
33
34
```

Outputs:

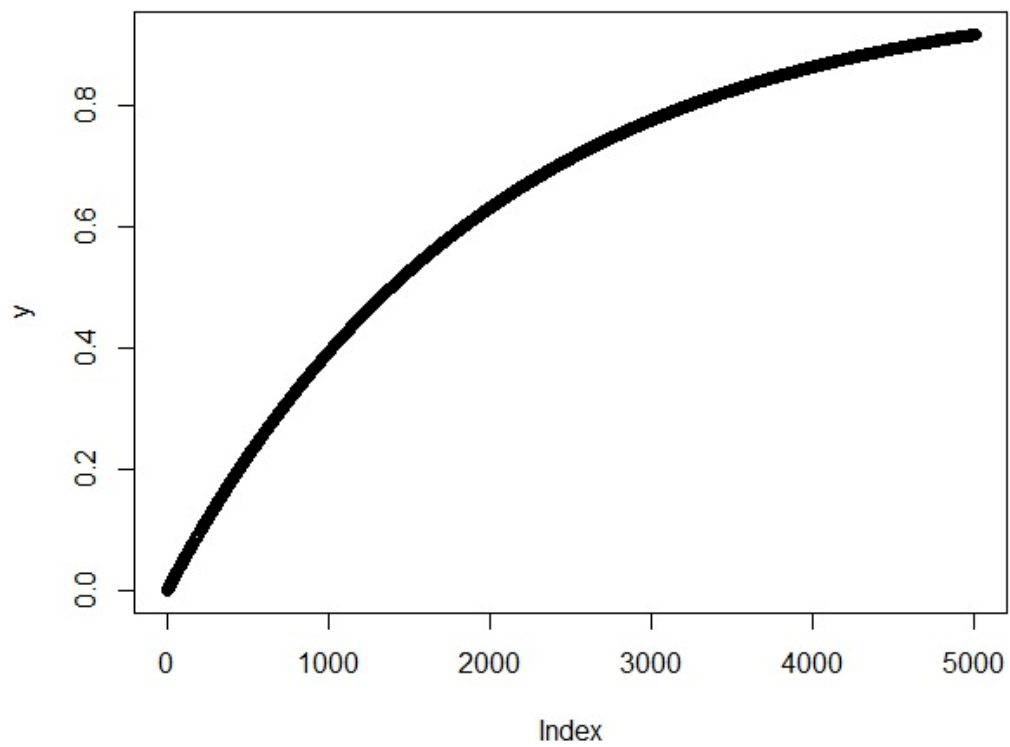
Q1

```
> punif(45,min=0,max=60, lower.tail=FALSE)
[1] 0.25
> punif(30,min=0,max=60, lower.tail=TRUE)-punif(20,min=0,max=60,lower.tail=TRUE)
[1] 0.1666667
> |
```

Q2 (a)

```
> dexp(3,1/2)
[1] 0.1115651
```

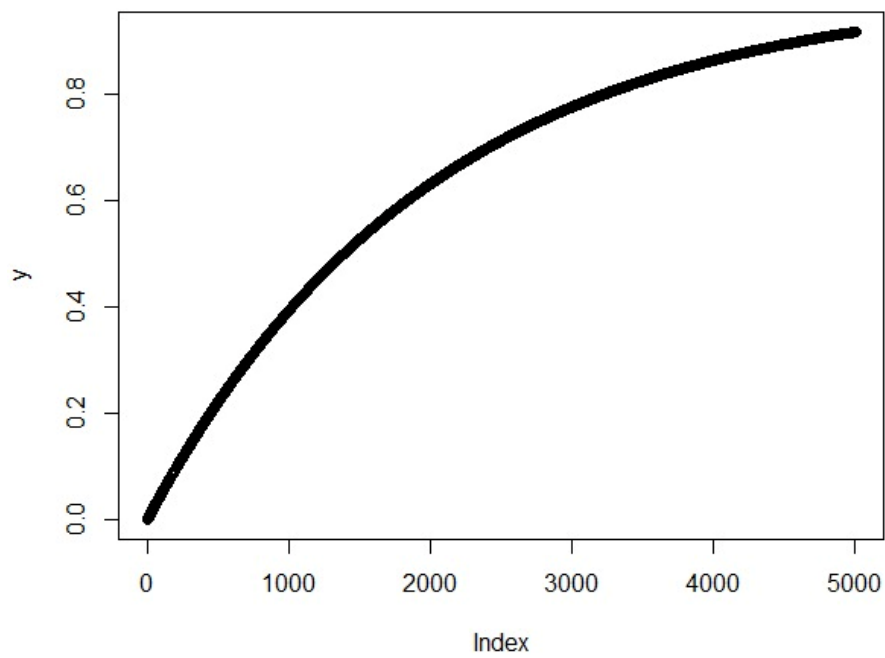
Q2 (b)



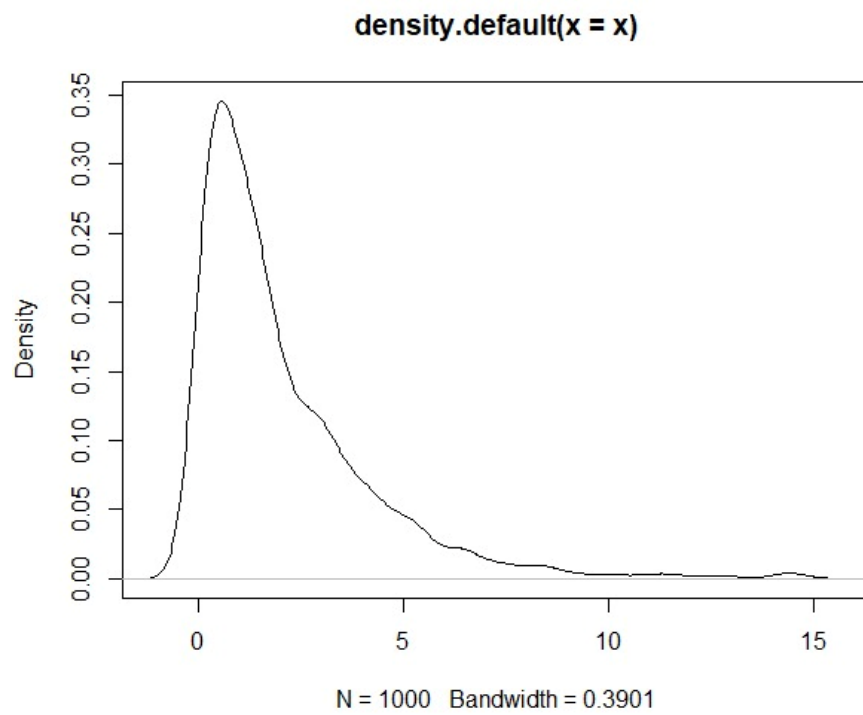
Q2 (c)

```
> pexp(3,rate=1/2)
[1] 0.7768698
> |
```

Q2 (d)



Q2 (e)



Q3

```
Console Terminal x
~/
> dgamma(3,2,1/3)
[1] 0.1226265
> pgamma(1,2,1/3, lower.tail=FALSE)
[1] 0.9553751
> qgamma(0.7,2,1/3, lower.tail=TRUE)
[1] 7.317649
> |
```