ASSIGNMENT 5

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SUBJECT: MAT1011 L4
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SLOT : L4

Q1) Births in a hospital occur randomly at an average rate of 1.8 births per hour.

· What is the probability of observing 4 births in a given hour at the hospital? (Ans:0.0723)

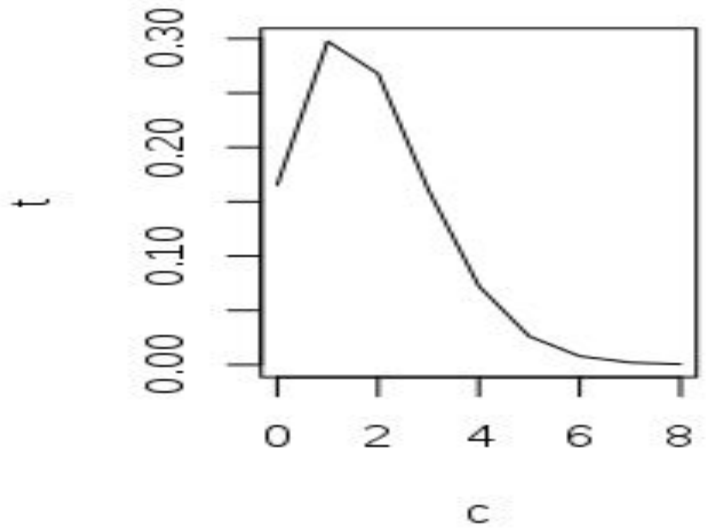
```
t=exp(-1.8)*(1.8^4)

> t/factorial(4)

[1] 0.07230173
```

· What about the probability of observing more than or equal to 2 births in a given hour at the hospital?(Ans:0.537)

```
t=(exp(-1.8)*(1.8^c(0:1)))/c(factorial(0:1))

> t

[1] 0.1652989 0.2975380

> prob=1-(sum(t))

> prob

[1] 0.5371631
```

PLOT:

```
t=(exp(-1.8)*(1.8^c(0:8)))/c(factorial(0:8))

> c=c(0:8)

>plot(c,t,type="l")
```



Q2) The mean number of typing errors in a document is 1.5 per page. Find the probability that on a page chosen at random there are

· no mistakes, (Ans: 0.2231)

```
t=(exp(-1.5)*(1.5^0))/factorial(0)
> t
[1] 0.2231302
```

· more than 2 mistakes. (Ans: 0.1912)

```
t=(exp(-1.5)*(1.5^c(0:2)))/c(factorial(0:2))
prob=1-sum(t)
> prob
[1] 0.1911532
```

PLOT:

```
t=(exp(-1.5)*(1.5^c(0:10)))/c(factorial(0:10))
>
> x=c(0:10)
> plot(x,t,type="l")
```

t
0.00
0.10
0.20
0.30
0
2
4
6
8
x