615HW111

We want to know how many pages in a book will have more than 8 misprints. Make an n x k table that shows the probability that n or fewer pages in a 50 page book will have more than 8 misprints.

We use possion distribution with lambda 2 to calculate the probability of more than 8 misprints on a page. After we know the probability of more than 8 misprints on a page, we can use it into binomial distribution to figure out the probability that there are no more than n pages with more than 8 misprints. Then we input these probabilities we got from the binomial distribution in to the table we created by using the as.data.frame function.

```
library(knitr)
library(kableExtra)

x <- c(1:8)
y <- c(1:50)

plist <- as.data.frame(matrix(ncol = 8, nrow = 50, dimnames = list(y,x)))


  for (j in x){
    for (i in y){
      p5mis <- ppois(j,2,lower.tail=FALSE)
        plist[i,j] <- pbinom(i,50,p5mis)}
}


knitr::kable(plist)
```

1	2	3	4	5	6	7	8
0.0000000	0.0000001	0.0041905	0.2528294	0.7991602	0.9781965	0.9985773	0.9999315
0.0000000	0.0000010	0.0194711	0.5060029	0.9499136	0.9984423	0.9999751	0.9999997
0.0000000	0.0000081	0.0602258	0.7311428	0.9905388	0.9999176	0.9999997	1.0000000
0.0000000	0.0000477	0.1400498	0.8781723	0.9985786	0.9999966	1.0000000	1.0000000
0.0000000	0.0002221	0.2624659	0.9533530	0.9998243	0.9999999	1.0000000	1.0000000
0.0000000	0.0008469	0.4155103	0.9846918	0.9999817	1.0000000	1.0000000	1.0000000
0.0000000	0.0027233	0.5758679	0.9956402	0.9999984	1.0000000	1.0000000	1.0000000
0.0000000	0.0075426	0.7195443	0.9989109	0.9999999	1.0000000	1.0000000	1.0000000
0.0000000	0.0182885	0.8313104	0.9997592	1.0000000	1.0000000	1.0000000	1.0000000
0.0000000	0.0393399	0.9076959	0.9999525	1.0000000	1.0000000	1.0000000	1.0000000
0.0000001	0.0759167	0.9539976	0.9999916	1.0000000	1.0000000	1.0000000	1.0000000
0.0000004	0.1327164	0.9790816	0.9999987	1.0000000	1.0000000	1.0000000	1.0000000
0.0000017	0.2120473	0.9913039	0.9999998	1.0000000	1.0000000	1.0000000	1.0000000
0.0000069	0.3122252	0.9966884	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.0000250	0.4271040	0.9988426	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.0000829	0.5471767	0.9996281	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.0002524	0.6619208	0.9998899	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.0007071	0.7624352	0.9999700	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.0018273	0.8433227	0.9999924	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.0043677	0.9032285	0.9999982	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.0096772	0.9441194	0.9999996	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.0199167	0.9698743	0.9999999	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.0381540	0.9848555	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.0681706	0.9929084	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.1138421	0.9969101	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.1780904	0.9987486	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.2616428	0.9995295	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.3620531	0.9998359	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.4734962	0.9999470	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.5876265	0.9999842	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.6953522	0.9999956	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.7889300	0.9999989	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.8636060	0.9999997	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.9182322	0.9999999	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.9547667	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.9770378	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.9893665	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.9955371	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.9983148	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.9994324	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.9998312	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.9999562	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.9999903	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.9999982	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
0.9999997	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000
1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000	1.0000000

```
colnames(plist)<-x
```

```
knitr::include_graphics("abook.jpg")
```