

Discussion_7

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5.1 - 6

Let X_1, X_2, \dots, X_n be n mutually independent random variables, each of which is uniformly distributed on the integers from 1 to k . Let Y denote the minimum of the X_i 's. Find the distribution of Y .

$$Y = \min(X_1, X_2, \dots, X_n)$$

sample:

```
k = 10
```

```
sample(k)
```

```
## [1] 7 2 10 4 9 6 1 5 3 8
```

```
sample <- runif(k, min = 1, max = k)
summary(sample)
```

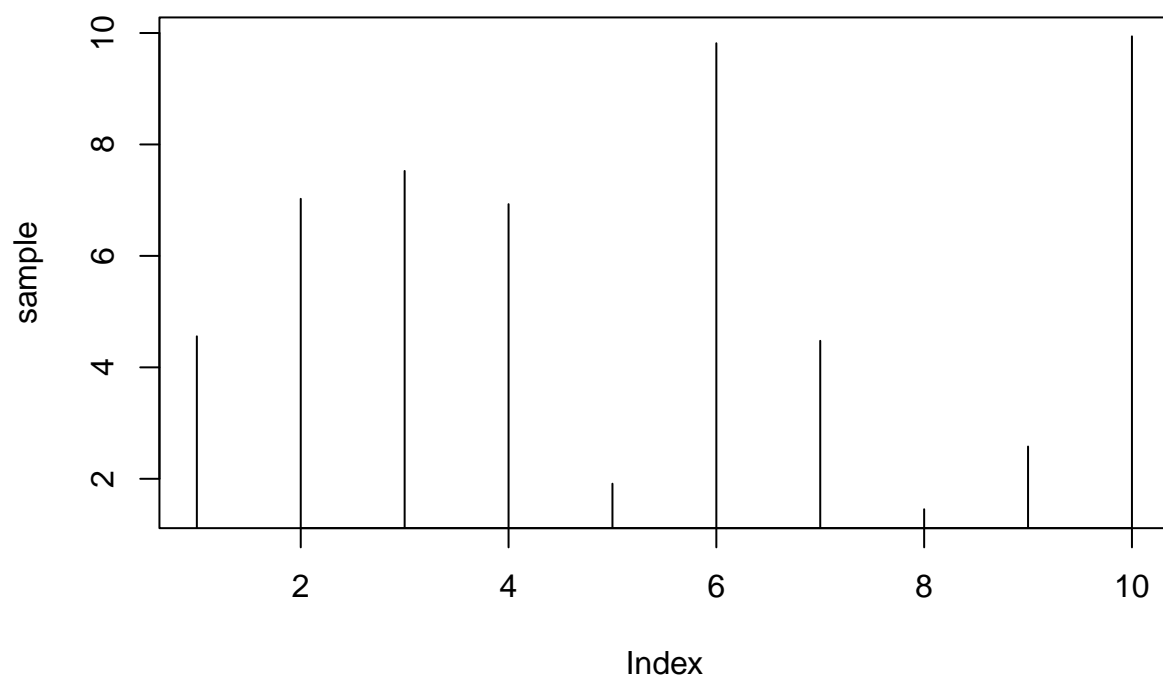
```
##      Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##  1.454   3.053   5.743   5.621   7.399   9.940
```

```
sample_dist <- punif(k, min = 1, max = k)
```

```
sample_dist
```

```
## [1] 1
```

```
plot(sample, type = "h")
```



```
y <- min(sample)
y_dist <- punif(y, min = 1, max = k)
plot(y, type = "h")
```

