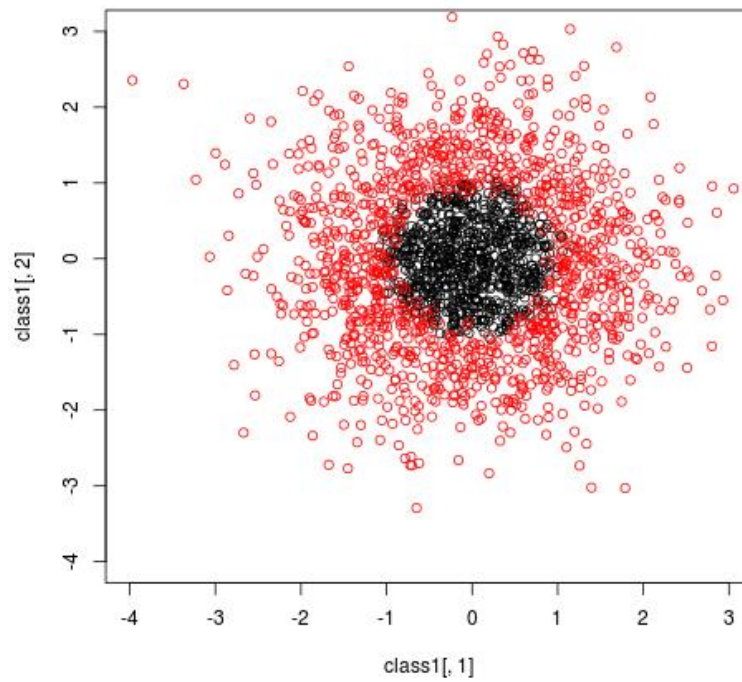


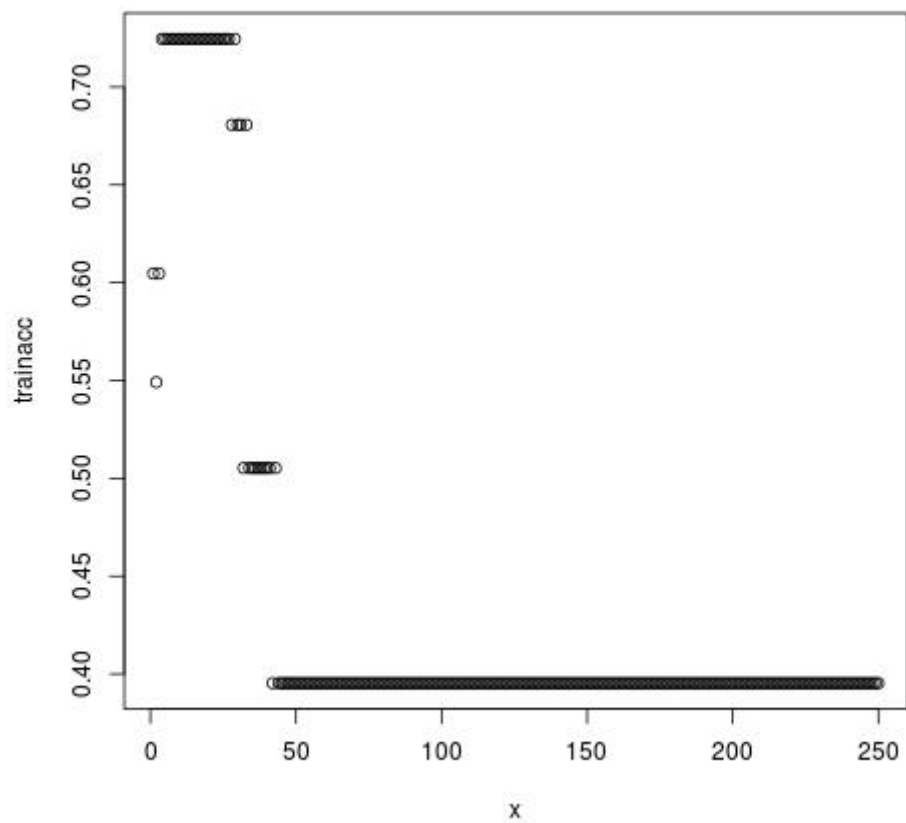
2.



black for +1, red for -1, linear function is not a good choice for a classifier

3.

(1) train accuracy for combined model against iteration



4.

(2) test accuracy (with $\text{sign}(H(x))$)

```
[1] 0.3969849 0.3969849 0.6030151 0.3969849 0.3969849 0.3969849 0.6030151
```

```
[8] 0.6030151 0.6030151 0.6030151
```

```
mean(testacc)
```

```
[1] 0.5
```

5. confusion matrix

```
[[1]]
```

```
  [,1] [,2]
```

```
[1,]  79   0
```

```
[2,] 120   0
```

```
[[2]]
```

```
  [,1] [,2]
```

```
[1,]   0  79
```

```
[2,]   0 120
```

```
[[3]]
```

```
  [,1] [,2]
```

```
[1,]  79   0
```

```
[2,] 120   0
```

```
[[4]]
```

```
  [,1] [,2]
```

```
[1,]  79   0
```

```
[2,] 120   0
```

```
[[5]]
```

```
  [,1] [,2]
```

```
[1,]  79   0
```

```
[2,] 120   0
```

```
[[6]]
```

```
  [,1] [,2]
```

```
[1,]  79   0
```

```
[2,] 120   0
```

```
[[7]]
```

```
  [,1] [,2]
```

```
[1,]  79   0
```

```
[2,] 120   0
```

```
[[8]]
```

```
  [,1] [,2]
```

```
[1,]   0  79
```

```
[2,]   0 120
```

```
[[9]]
```

```
  [,1] [,2]
```

```
[1,]  79   0
```

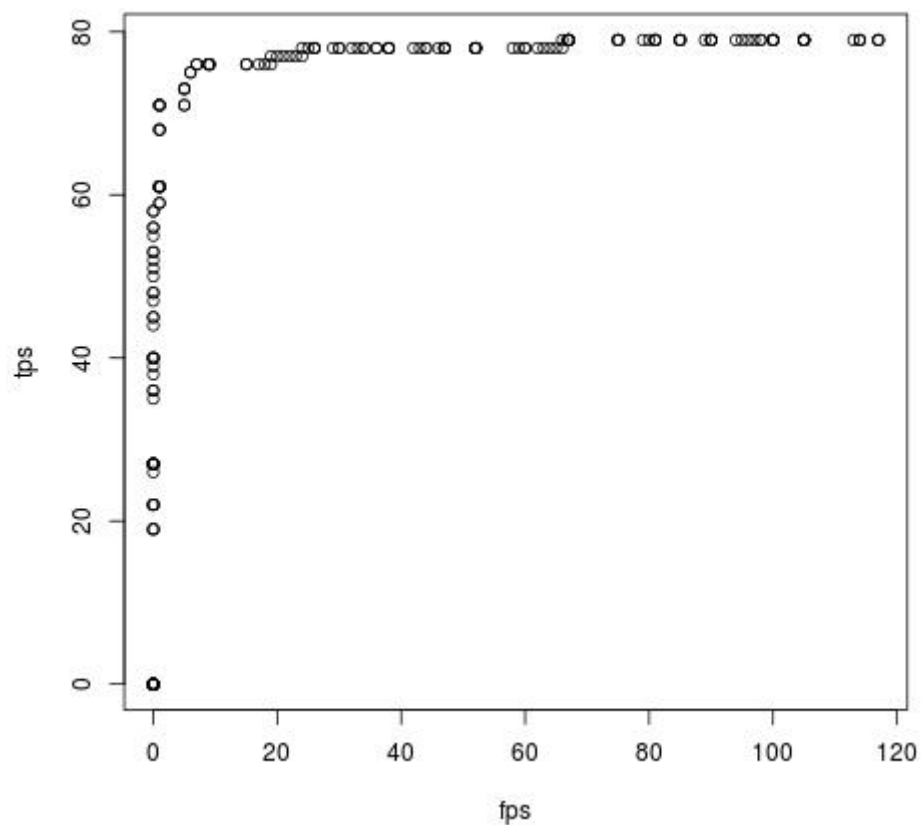
```
[2,] 120   0
```

```
[[10]]
  [,1] [,2]
[1,]  79   0
[2,] 120   0
```

6. precision and recalls

```
> precisions1
[1] 0.3969849 NaN 0.3969849 0.3969849 0.3969849 0.3969849 0.3969849
[8] NaN 0.3969849 0.3969849
> precisions2
[1] NaN 0.6030151 NaN NaN NaN NaN NaN
[8] 0.6030151 NaN NaN
> recalls1
[1] 1 0 1 1 1 1 1 0 1 1
> recalls2
[1] 0 1 0 0 0 0 0 1 0 0
```

7. ROC curves



choose threshold at turning point instead of sign(H) to increase accuracy