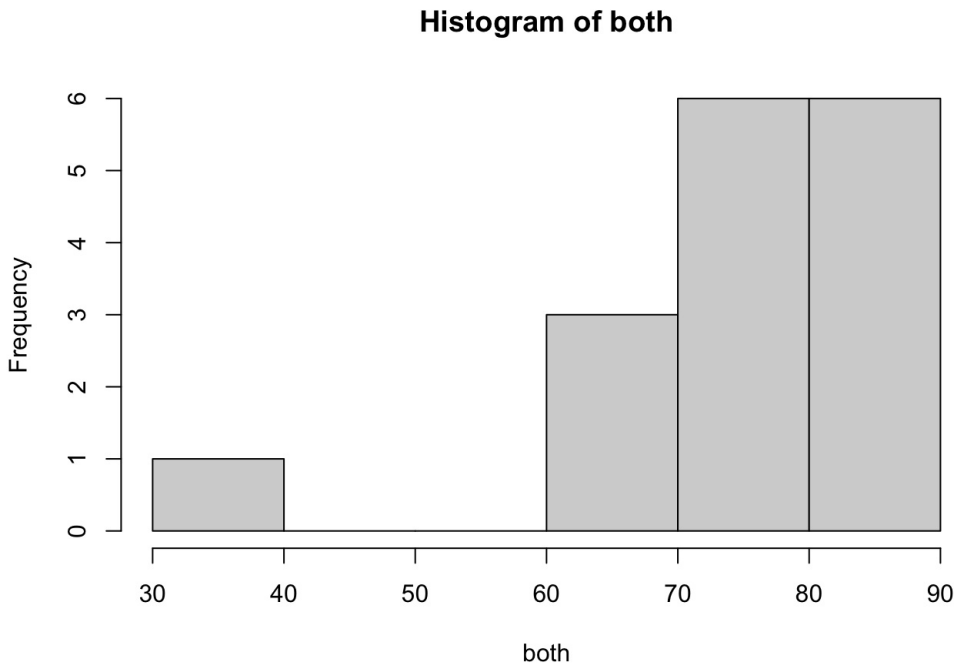
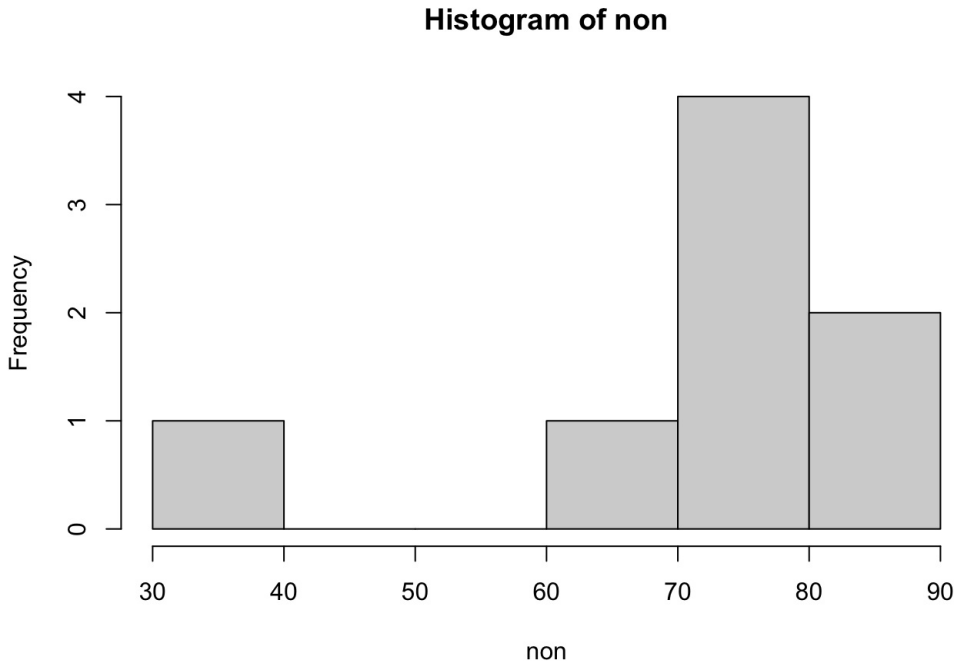
Homework4

Question 4

```
smk = c(81,62,90,79,65,86,88,72)
non = c(72,86,77,66,80,35,87,79)
both = c(81,62,90,79,65,86,88,72,72,86,77,66,80,35,87,79)
hist(both)
```




```
hist(non)
```



Data does not look to be normally distributed, so use nonparametric inferences. Equal number of data points so just use wilcoxon sign rank test. Null will be that there is no difference, and alternate will be that there is a difference.

```
count = 1
smktotal = 0
nontotal = 0
x = sort(both)
for(i in both)
  if(i %in% smk){ #run through counting. since no duplicates in the data set i can just do this
    smktotal = smktotal+count
    }
  if(i %in% non){
    nontotal = nontotal+count
  }
  count = count+1
min = min(smktotal,nontotal)
crit = 3#critical value from table
if(min>crit){
  print("reject null")
} else{
  print("do not reject null")
}
```

```
## [1] "do not reject null"
```

testing with r built in function just for fun

```
wilcox.test(smk,non,alternative = "two.sided")
```

```
## Warning in wilcox.test.default(smk, non, alternative = "two.sided"): cannot
## compute exact p-value with ties
```

```
##
##  Wilcoxon rank sum test with continuity correction
##
## data:  smk and non
## W = 37.5, p-value = 0.5987
## alternative hypothesis: true location shift is not equal to 0
```