Homework 1

Radoslav Hubenov №45708

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Problem 1

A)

Get the min value of AGE where SEX is “Female”.

```
min(survey$Age[survey$Sex == "Female"], na.rm=T)
```

```
## [1] 16.917
```

B)

Sort by height and then get the genders of the three highest.

```
survey$Sex[sort(survey$Height, decreasing=T)][0:3]
```

```
## [1] Female Female Female
## Levels: Female Male
```

V)

Calculate the mean for the ages where Sex is “Male” and Pusle > 80

```
mean(survey$Age[ survey$Sex == "Male" & survey$Pulse > 80], na.rm=T)
```

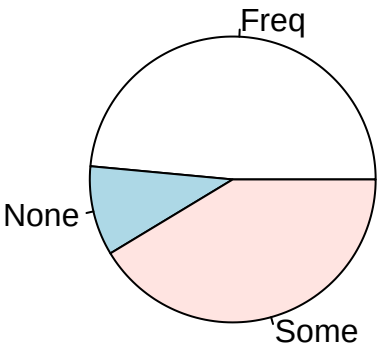
```
## [1] 18.72732
```

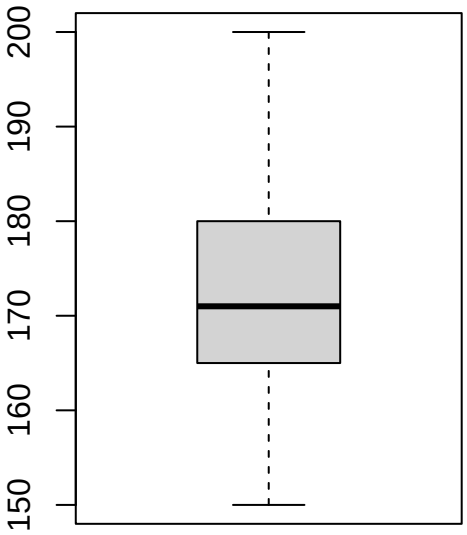
Split the screen, plot the pie on the first screen and plot the boxplot on the second. ## G)

```
split.screen(c(1,2))
```

```
## [1] 1 2
```

```
screen(1)
pie(table(survey$Exer))
screen(2)
boxplot(survey$Height)
```





Problem 2

Not sure how to plot the convergence to infinity of a function. This gets the values of the function from 1 to 1000, flattens the values into one vector and calculates then plots the cummulative mean as n increases to 1000.

```
f <- function(n = 100) {
  count = 0
  for(i in 1:n) {
    xs = sample(1:10, size=3, replace=T)

    if((xs[1] + xs[2]) > 2*xs[3]) {
      count = count + 1
    }
  }
  count / n
}

f(100)
```

```
## [1] 0.52
```

```
f(1000)
```

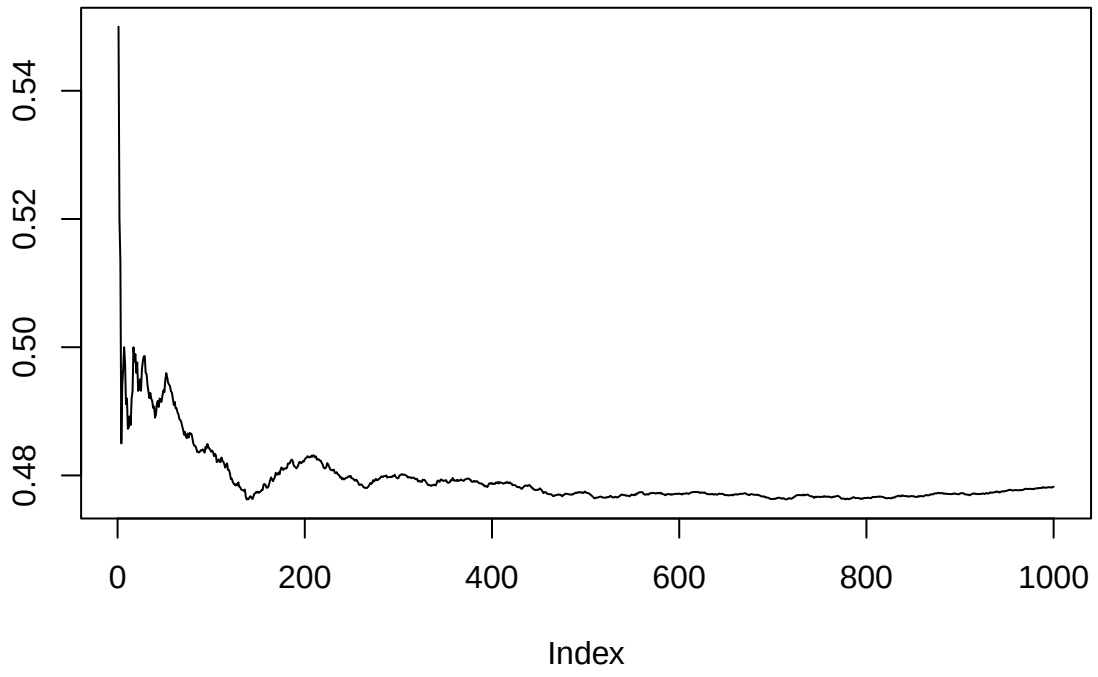
```
## [1] 0.509
```

```
f(10000)
```

```
## [1] 0.4773
```

```
map(1:1000, ~f()) %>%
  unlist() %>%
  cummean() %>%
  plot(type="l")
```

.



Problem 3

A)

Calculate the amount of values bigger than 3 and divide by the total count.

```
count = 1000
xs = rnorm(count, mean=4, sd=6)
length(xs[xs > 3]) / 1000
```

```
## [1] 0.553
```

B)

65 percent of xs are under the c and 35 percent are over the c.

```
c = quantile(xs, probs=0.65)
```

V)

```
m = median(xs)
q1 = median(xs[xs < m])
q3 = median(xs[xs > m])
m
```

```
## [1] 3.673192
```

```
q1
```

```
## [1] 0.1999366
```

```
q3
```

```
## [1] 7.950787
```