Homework 1

Arithmetic

1. > 1/3 + 1/4
2. > 2^10 + 1
3. > f = 440
   > 1127*log(1 + f/700)
4. > (-b+sqrt(b^2-(4*a*c)))/2*a

Categorical data

List of steps:

a. > setwd("/Users/danielacastillo/Documents/PhD/Stats/Homework/hw01-dcastillo20-master")
b. > df1 = read.csv("NYC.csv", header = TRUE)
c. > xtabs(~r+emphasis+word,data=df1)

```
, , word = flooR

   emphasis
r   emphatic normal
  0      65    139
  1      59     84

, , word = fouRth

    emphasis
r   emphatic normal
  0     112    183
  1      35     52
```

d. > colPerc(xtabs(~r+store+word,data=df1) [„"flooR"])

```
       store
r      Klein's Macy's   Saks
  0      88.46  50.93  36.59
  1      11.54  49.07  63.41
  Total 100.00 100.00 100.00
```

Answer to question 1:

35 persons (from all stores) pronounced the rhotic version of “fourth” in the emphatic condition.

Answer to question 2:

The employees at S. Klein’s used r in the word “floor” 11.54% of the time.

Ratio data

List of steps:

a. > setwd("/Users/danielacastillo/Documents/PhD/Stats/Homework/hw01-dcastillo20-master")
b. > df2 <- read.delim("VOT.tsv", TRUE, stringsAsFactors = FALSE)
c. > df2

```
     participant   language item repetition   vot
1    monoSp00      spanish   da   1           -61.56
2    monoSp00      spanish   da   2           -67.00
3    monoSp00      spanish   da   3           -56.95
...
200  monoEn01      english   dig  2           -0.95
 [ reached 'max' / getOption("max.print") -- omitted 520 rows ]
```

d. > vot = df2[,5]
> vot

```
[1] -61.56 -67.00 -56.95 -61.16 -54.46 -47.44 -72.13 -72.54 -44.53   5.78
 [11]  21.63  12.75  10.72  10.02  25.46  19.07  17.96  12.99 -58.73 -61.60...
```

e. > length(vot)

```
[1] 720
```

f. > summary(vot)

```
Min.     1st Qu.  Median  Mean 3rd Qu.    Max.
-85.29  -17.98   13.82    4.06   27.36    82.86
```

Or

```
> quantile(vot, .25)
 25%
 -17.975
> quantile(vot, .75)
75%
27.365
> quantile(vot, .50)
50%
13.825
```

g. > IQR(vot)

```
[1] 45.34
```

h. > mean(df2[df2$language == "spanish",] $vot)

```
[1] -24.31306
```

i. > sd(df2[df2$language == "english",] $vot)

```
[1] 19.86479
```