Arithmetic

1. (1/3)+(1/4)

2. (2^10) + 1

3. f = 440
   1127 * (log(1 + (f/700)))

4. a = 2
   b = 4
   c = -4
   ((-b) + (sqrt((b^2) - (4*a*c)))) / (2*a)

Categorical Data

1. How many times did employees at the three department stores use r in the word “fourth” in the emphatic condition?

```
#sets the workspace directory and reads the file
setwd('/Users/zub/Google Drive/CUNY/Stats for Ling Research/Homework/HW1')
labov = read.csv('/Users/zub/Google Drive/CUNY/Stats for Ling Research/Homework/HW1/NYC.csv')

#charts the use of 'r' in both words across both conditions
table(labov$r, labov$word, labov$emphasis)

"The emphatic use of 'r' in the word 'fourth' across all stores is 35"
```

2. What percentage of the time did employees at S. Klein’s use r in the word “floor”?

```
#charts the occurrence of 'r' in both words across all three stores
table(labov$r, labov$store, labov$word)

"In the word 'floor', S.Klein used 'r' 12 times"
"instances of 'floor' uttered at S.Klein's:"
92 + 12
```

Answer
104

```
"Of the above, 12 instances were uttered with 'r'"
"The percentage of instances of 'floor' with 'r' out of all instances of 'floor' is:"
(12/104) * 100
```

Answer
11.53846%

Ratio Data

Disclaimer: For reasons that were not covered in the practicum, the commands that were covered in the practicum did not work with the .tsv file. Once converted to .cvs, everything worked fine.

1. Sample quartiles for VOT (NB: the 2nd quartile, AKA the 50% percentile, is the median)

```
#read the file
spanish = read.csv("/Users/zub/Google Drive/CUNY/Stats for Ling Research/Homework/HW1/VOT.csv",
header = T)

#create an object for the column 'vot'
VOT = spanish$vot

#calculate sample quartiles for VOT
quantile(VOT)
```

Answer

First Quartile	-17.975
Second Quartile	13.852
Third Quartile	27.365

2. The mean of Spanish speakers' VOTs

```
#create an object containing the spanish-speaking participants
spanish_vot = spanish[spanish$language == "spanish",]

#calculate the mean for the values in the vot column of the spanish-speaking participants
mean(spanish_vot$vot)
```

Answer

-24.31306

3. The (sample) standard deviation of English speakers' VOTs

```
#create an object containing the english-speaking participants
english_vot = spanish[spanish$language == "english",]

#calculate standard deviation of English speakers' VOTs
sd(english_vot$vot)
```

Answer

19.86479