Math 170S HW1

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1)

```r
data <- c(245, 223, 265, 201, 229, 221, 278, 299,289,281,277, 275, 274, 221,221,234, 225, 228,231,236,239,240,243,256,247,255,257,
266,278,269,260,276)

mean(data)
median(data)
IQR(data)
sd(data)
var(data)
```

```
[1] 251.2188
[1] 251
[1] 43.75
[1] 24.35058
[1] 592.9506
```

2)

```r
data2 <- data.frame("Class" = c("0-9","10-19","20-29","30-39","40-49","50-59"), "Frequency" = c(8,5,7,11,9,6))
data2$midpts <- c(4.5,14.5,24.5,34.5,44.5,54.5)
data2
mean2 <- sum(data2$Frequency*data2$midpts)/sum(data2$Frequency)
var2 <- sum(data2$Frequency*(data2$midpts - mean2)^2)/sum(data2$Frequency)
sd2 <- sqrt(var2)

#the median is between the 23rd and 24th value
median2 <- ((29.5 + (23-20)*10/11) + (29.5 + (24-20)*10/11))/2
first_q_2 <- 9.5 + (11.5-8)*10/5
third_q_2 <- 39.5 + (34.5-31)*10/9
IQR2 <- third_q_2 - first_q_2
```

Class <chr>	Frequency <dbl>	midpts <dbl>
0-9	8	4.5
10-19	5	14.5
20-29	7	24.5
30-39	11	34.5
40-49	9	44.5
50-59	6	54.5

6 rows

```r
mean2
var2
sd2
median2
IQR2
```

```
[1] 30.15217
[1] 268.0529
[1] 16.37232
[1] 32.68182
[1] 26.88889
```

3)

```r
data3 <- data.frame("Class" = c("30-34","35-39","40-44","45-49","50-54","55-59","60-64"), "Frequency" = c(12,15,10,9,11,13,8))
data3$midpts <- c(32,37,42,47,52,57,62)
data3
mean3 <- sum(data3$Frequency*data3$midpts)/sum(data3$Frequency)
var3 <- sum(data3$Frequency*(data3$midpts - mean3)^2)/sum(data3$Frequency)
sd3 <- sqrt(var3)

#the median is between the 39th and 40th value
median3 <- ((44.5 + (39-37)*5/9) + (44.5 + (40-37)*5/9))/2
first_q_3 <- 34.5 + (19.5-12)*5/15
third_q_3 <- 54.5 + (58.5-57)*5/13
IQR3 <- third_q_3 - first_q_3
```

Class <chr>	Frequency <dbl>	midpts <dbl>
30-34	12	32
35-39	15	37
40-44	10	42
45-49	9	47
50-54	11	52
55-59	13	57
60-64	8	62

7 rows

```r
mean3
var3
sd3
median3
IQR3
```

```
[1] 46.03846
[1] 99.39596
[1] 9.969752
[1] 45.88889
[1] 18.07692
```