

Section 1

1) a)

```
> heights <- c(69.29133858, 64, 63)
> print(heights)
[1] 69.29134 64 63
```

b)

```
> names <- c("Enmin", "Meredidhe", "Sam")
> print(names)
[1] "Enmin" "Meredidhe" "Sam"
```

c)

```
> cbind(heights, names)
      heights      names
[1,] "69.29133858" "Enmin"
[2,] "66.92913386" "A"
[3,] "64.96062992" "B"
```

This command make “heights” and “names” into two rows of a matrix. This new object is “matrix”.

2) a)

```
> NCBirths <- read.csv("~/Desktop/stats10/births.csv")
```

b)

```
> head(NCBirths)
```

	Gender	Premie	weight	Apgar1	Fage	Mage	Feduc	Meduc	TotPreg	Visits	Marital	Racemom	Racedad	Hispnom
	Hispdad	Gained	Habit	MomPriorCond										
1	Male	No	124	8	31	25	13	14	1	13	Married	White	White	NotHisp
	NotHisp	40	NonSmoker			None								
2	Female	No	177	8	36	26	9	12	2	11	Unmarried	White	White	Mexican
	Mexican	20	NonSmoker			None								
3	Male	No	107	3	30	16	12	8	2	10	Unmarried	White	Unknown	Mexican
	Unknown	70	NonSmoker	At Least One										
4	Female	No	144	6	33	37	12	14	2	12	Unmarried	White	White	NotHisp
	NotHisp	50	NonSmoker			None								
5	Male	No	117	9	36	33	10	16	2	19	Married	White	Black	NotHisp
	NotHisp	40	NonSmoker	At Least One										
6	Female	No	98	4	31	29	14	16	3	20	Married	White	White	NotHisp
	NotHisp	21	NonSmoker			None								
	BirthDef	DelivComp	BirthComp											
1	None	At Least One	None											
2	None	At Least One	None											
3	None	At Least One	None											
4	None	At Least One	None											
5	None	None	None											
6	None	None	None											

3) a)

```
> find.package("maps")
[1] "/home/enminz/R/x86_64-pc-linux-gnu-library/3.4/maps"
```

b)

```
> library(maps)
> map("state")
```



4) a)

```
> weights <- NCBirths$weight
```

b)

The numbers in 'weights' are around 100. So I think the unit is ounce.

c)

```
> weights_in_pounds <- weights / 16
```

d)

```
> weights_in_pounds[1:20]
[1] 7.7500 11.0625 6.6875 9.0000 7.3125 6.1250 9.1875 8.6250 6.5000 7.6875 9.5625 8.0625
7.4375 6.7500 6.6250 7.8125 7.1875
[18] 8.0000 8.2500 5.1875
```

Section 2

1)

```
> mean(weights_in_pounds)
[1] 7.2532
```

2)

```
> tally(NCBirths$Habit)
```

X

NonSmoker	Smoker
1805	187

The percentage is 9.38755%.

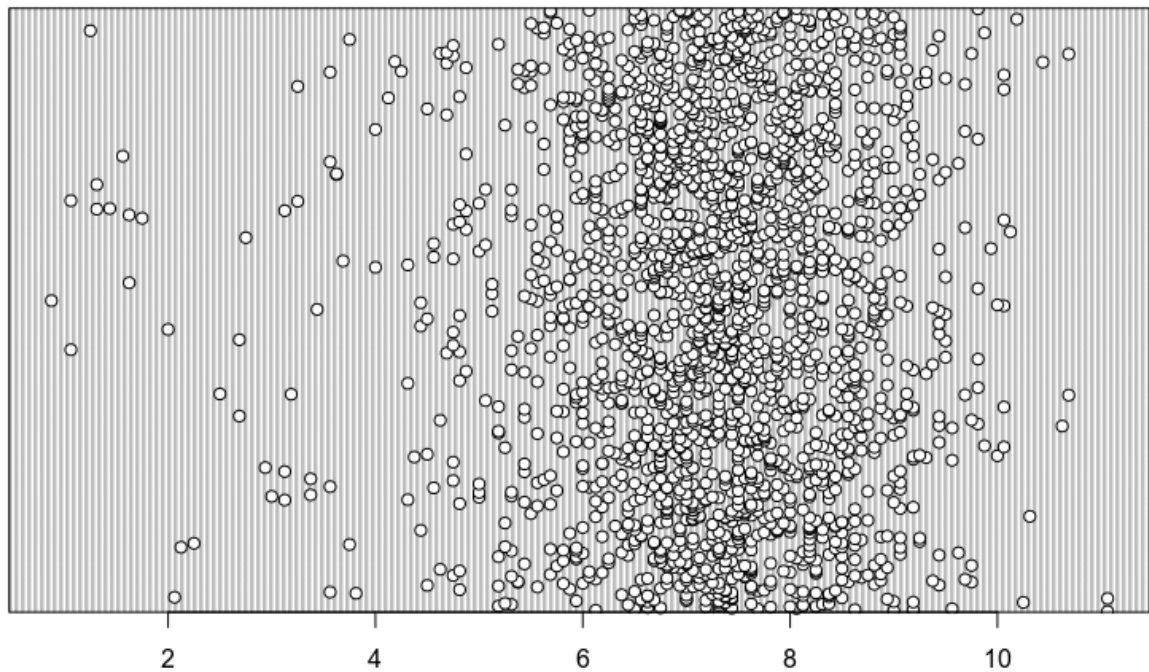
3)

11.61245%.

Section 3

1)

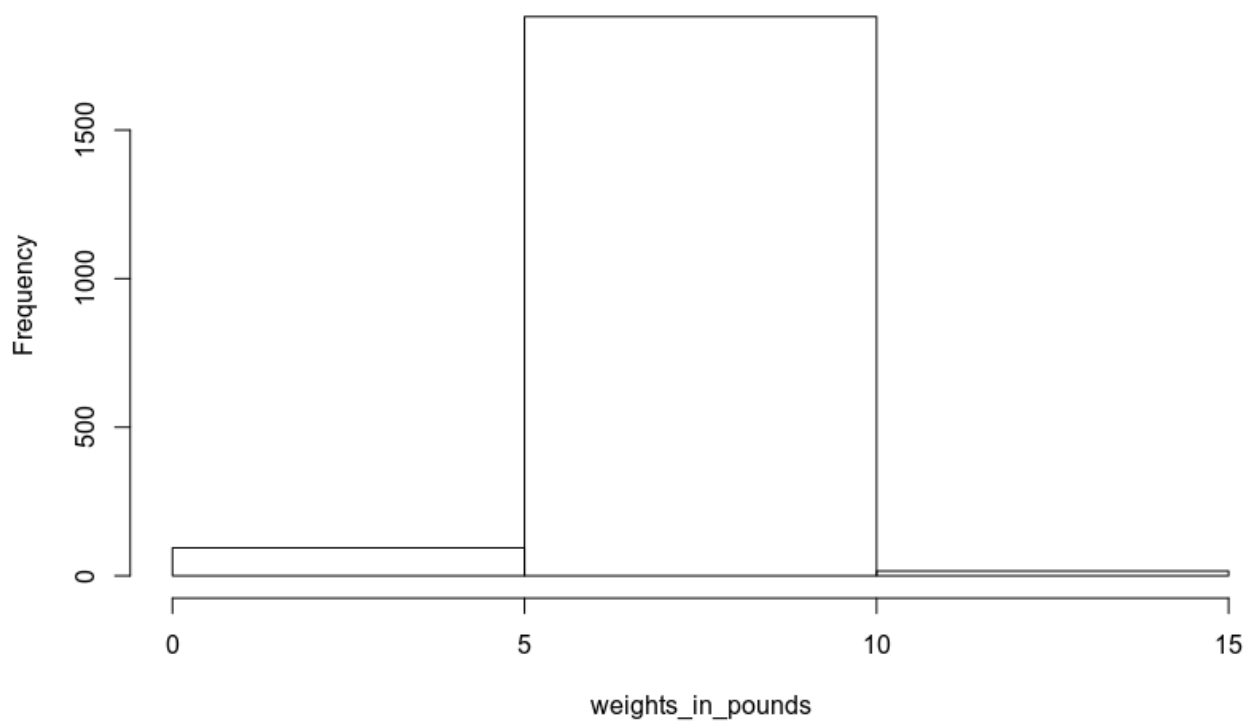
```
> dotchart(weights_in_pounds)
```



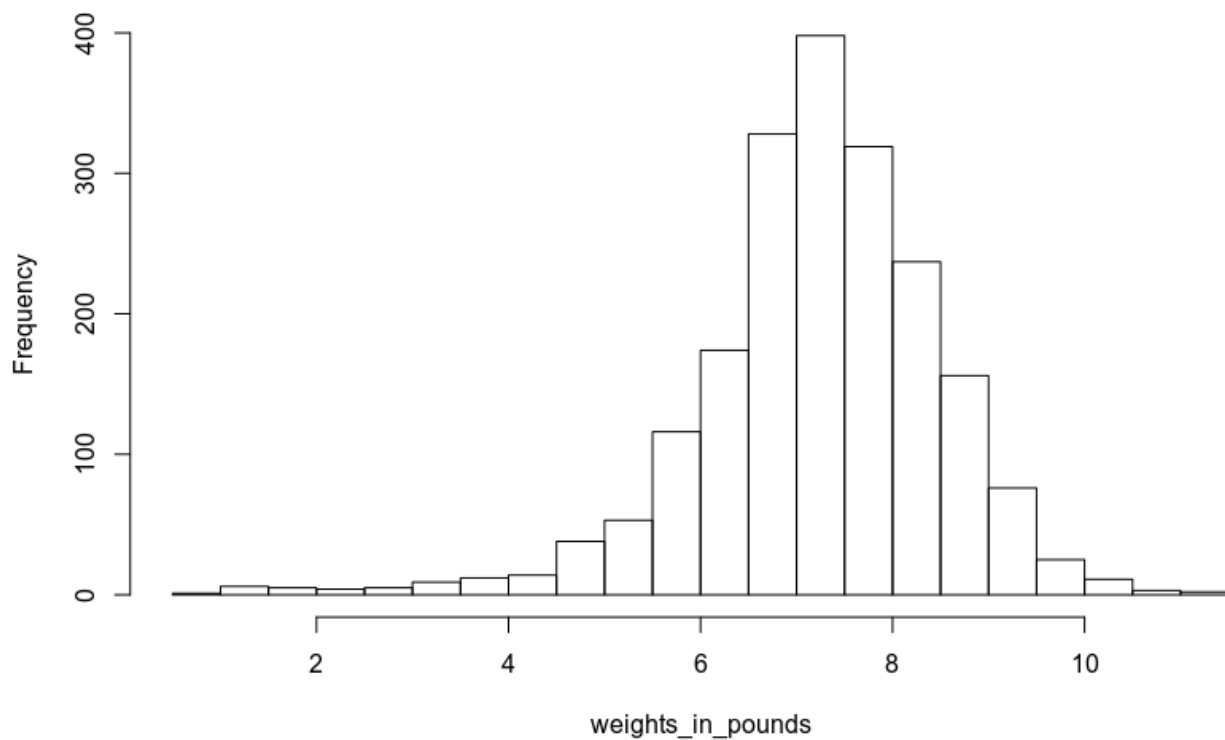
2)

```
> histogram(weights_in_pounds, breaks=3)
> histogram(weights_in_pounds, breaks=20)
> histogram(weights_in_pounds, breaks=100)
```

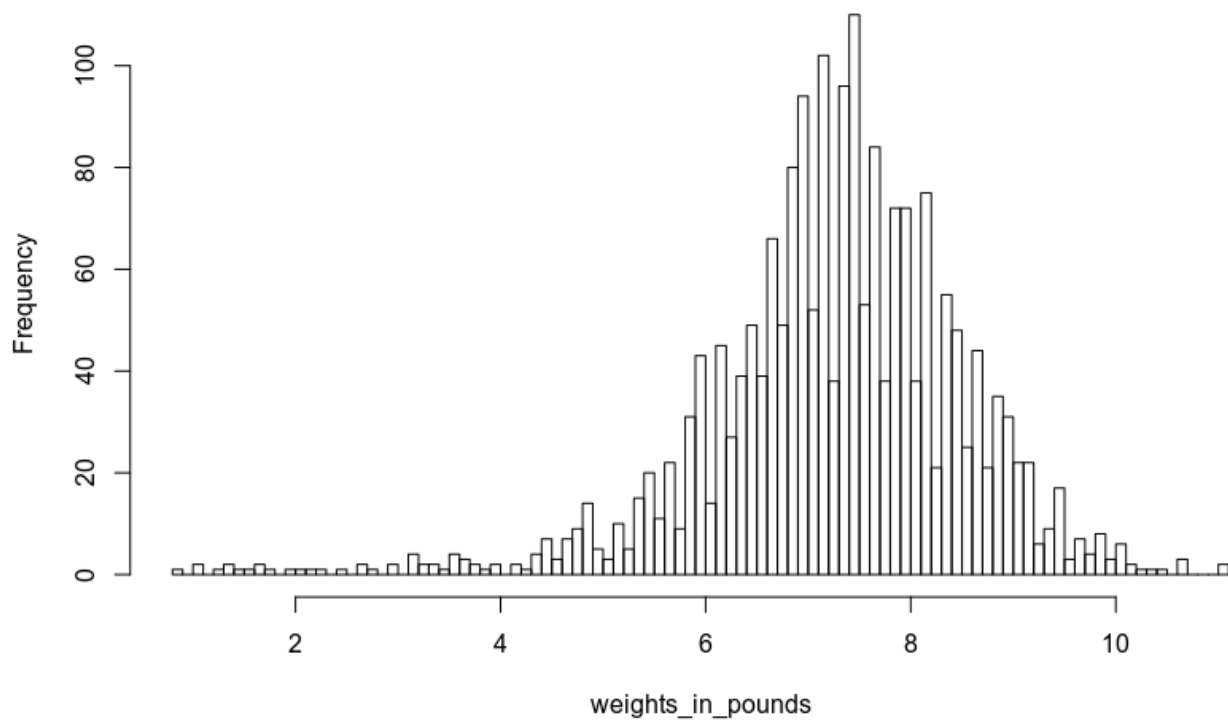
Histogram of weights_in_pounds



Histogram of weights_in_pounds

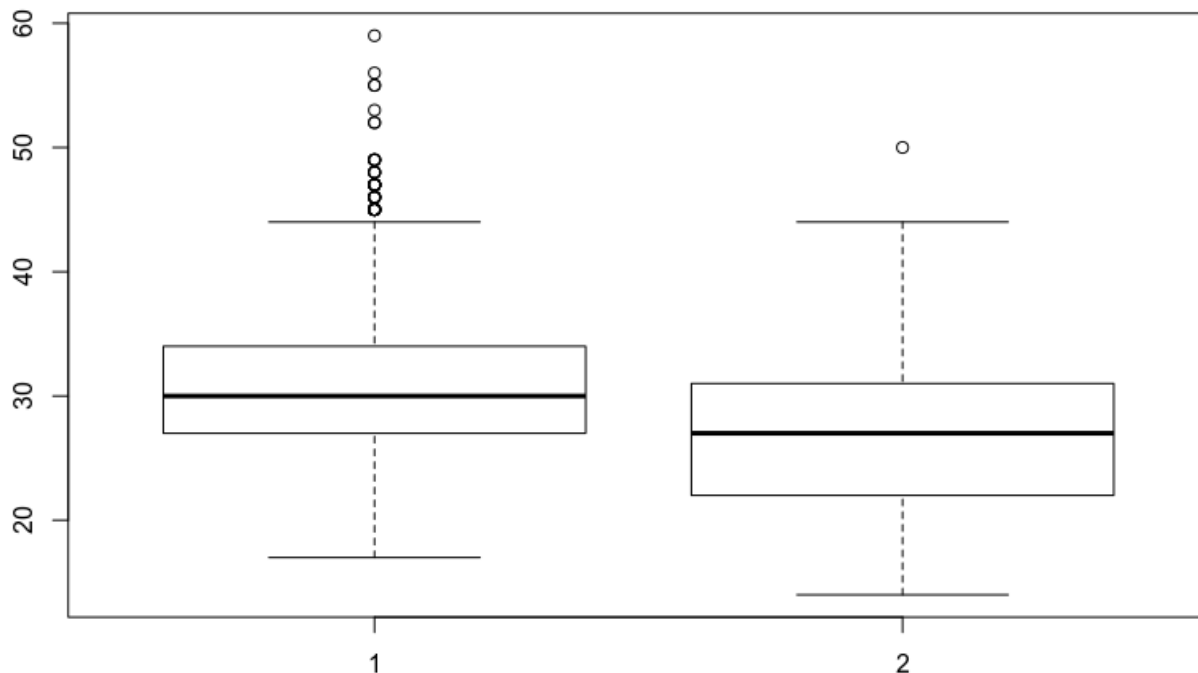


Histogram of weights_in_pounds



The histogram with 20 bins gives the best visualization because it clearly shows the trend of the data.

3)
> boxplot(NCBirths\$Fage, NCBirths\$Mage)



The left is Fage and the right is Mage. The male tends to be older.

4)

Section 4

1)

```
> tally(~BirthDef| Habit, data = NCBirths, format = "proportion")
```

BirthDef	NonSmoker	Smoker
At Least One	0.006648199	0.016042781
None	0.993351801	0.983957219

Moms who are smokers have more BirthDef babies than those who are nonsmokers.

Section 5

1)

```
> plot(NCBirths$weight ~ NCBirths$Mage, col = "red", cex = 1.5, pch = 3, xlab= "Mom's age", ylab = "Baby weight (oz.)", main = "Weight vs Mom's age")
```



Section 6

1)

California ozone bubble plot

