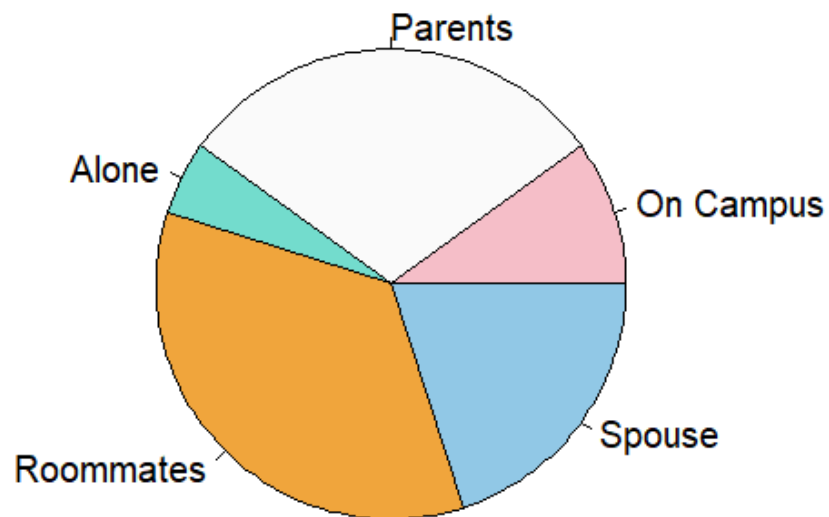


Q1

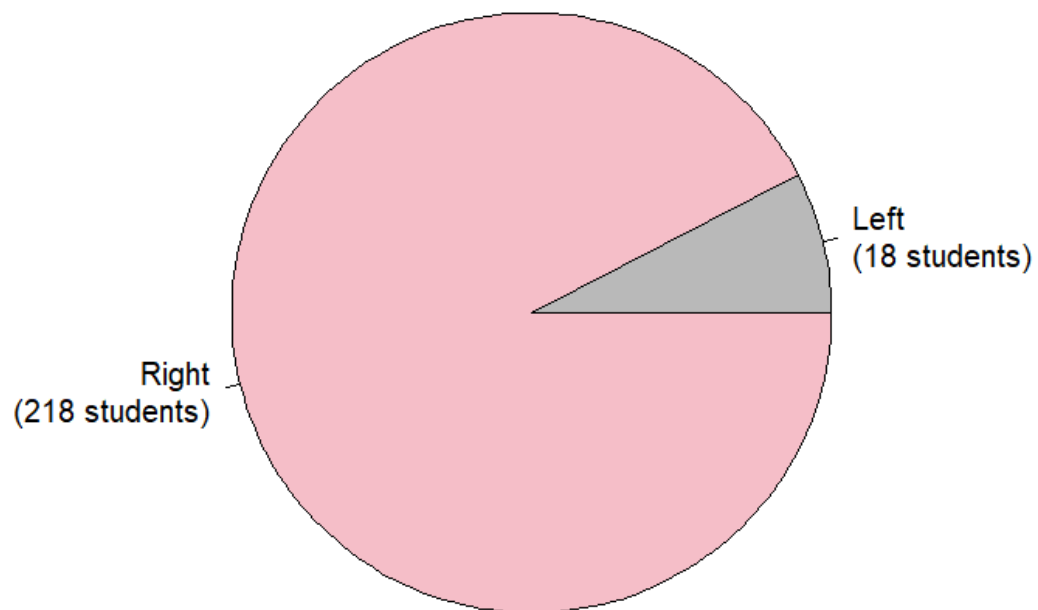
Living Arrangements of Students



```
# 1
percents <- c(10,30,5,35,20);
home.type <- c("On Campus","Parents","Alone", "Roommates", "Spouse")
pie(percents,
    labels = home.type,
    main = "Living Arrangements of Students",
    col = c("#f5c1ca", "#fefafa", "#73dccf", "#f2a83d", "#95cbe7")
);
```

Q2

Writing Hand of Students (n = 236)

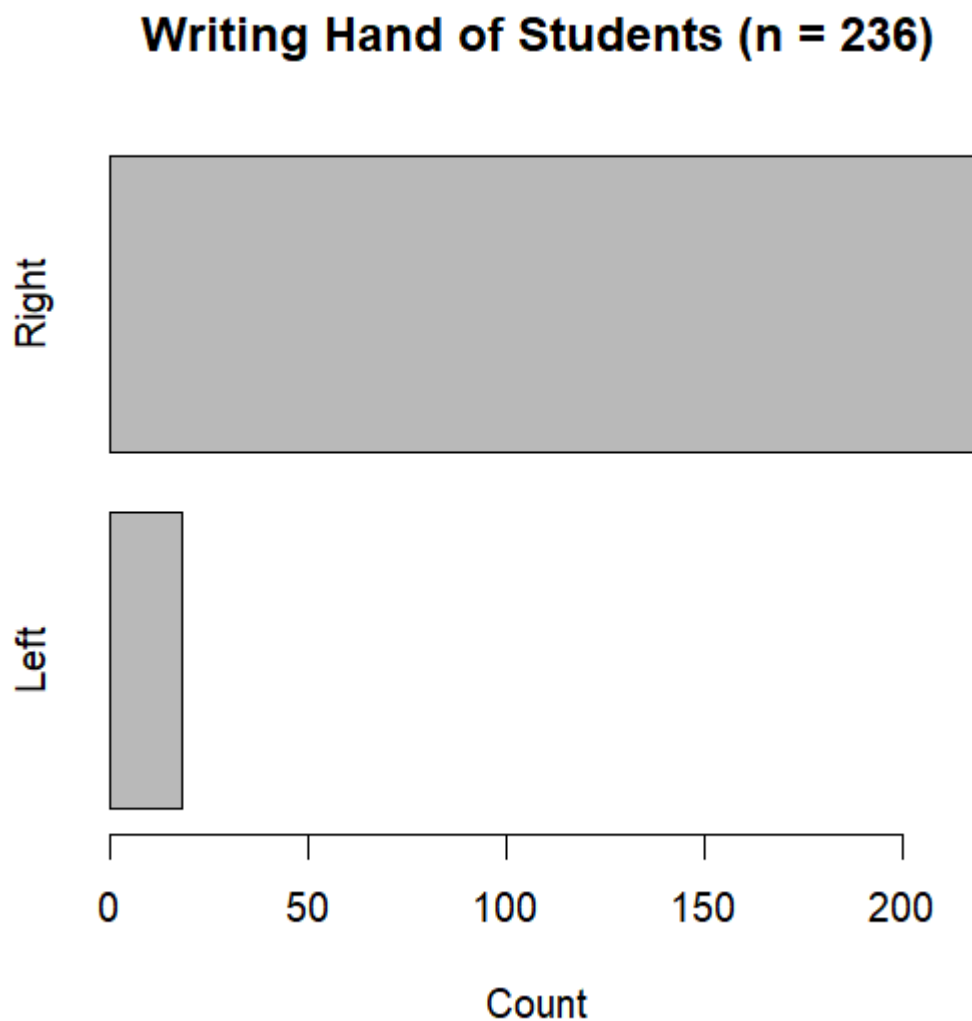


```
# 2
library(MASS);
View(survey);
head(survey);

levels(survey$W.Hnd);
freq.tab <- table(survey$W.Hnd)
new.labels <- paste(names(freq.tab), "\n(", freq.tab, " students)", sep="");

pie(freq.tab,
    labels = new.labels,
    main = paste0("Writing Hand of Students (n = ", sum(freq.tab), ")"),
    col = c("#bdbdbd", "#f5c1ca")
);
```

Q3



```
# 3
barplot(freq.tab,
  horiz = TRUE,
  names.arg = names(freq.tab),
  main = paste0("Writing Hand of Students (n = ", sum(freq.tab), ")"),
  xlab = "Count",
  col = "#bdbdbd"
);
```

Q4

```
stem(survey$Height, scale = 2);
```

Q5

1 2: represents 12, leaf unit: 1		
mens.heights		womens.heights
	15	0
	15	
	15	22
	15	3
4	15	4
	15	55
	15	66
	15	777777
	15	8
	15	99
00	16	000000
	16	
	16	22222
	16	333
	16	4444
55555	16	55555555555555
	16	66
777	16	7777777777
88	16	888888888
	16	999
000000	17	00000000000000
111	17	111
22222	17	2222222
33	17	33
4	17	
555555	17	5555
666	17	6
77777	17	
88	17	8
99999	17	
000000000000000000	18	0
	18	
222222	18	
333	18	
44	18	
55555555	18	
	18	
777777	18	
8	18	
99	18	
000000	19	
1	19	
	19	
3	19	
	19	
5	19	
6	19	

	19	
	19	
	19	
	0 20	
<hr/>		
n:	107	103
NAs:	1	1
<hr/>		

```
# 5
install.packages("aplpack");
library(aplpack);
mens.heights <- survey$Height[survey$Sex == "Male" & !is.na(survey$Height)];
womens.heights <- survey$Height[survey$Sex == "Female" & !is.na(survey$Height)];
stem.leaf.backback(mens.heights, womens.heights, m = 10, depths = FALSE);
```

Q6

The average male height is generally higher (the stems on 17, 18, and 19 are longer and the leaves are denser), while the average female height is generally lower (mainly concentrated around 15 and 16). The two distributions overlap, but their centers are clearly different; the male distribution is also somewhat more spread out, with more extreme tall values.

Q7

Male		Female	
[16,18]	34	[16,18]	49
(18,20]	51	(18,20]	40
(20,22]	18	(20,22]	11
(22,24]	7	(22,24]	5
(24,26]	1	(24,26]	2
(26,28]	1	(26,28]	1
(28,30]	1	(28,30]	2
(30,32]	0	(30,32]	2
(32,34]	1	(32,34]	1
(34,36]	1	(34,36]	1
(36,38]	1	(36,38]	0
(38,40]	0	(38,40]	1
(40,42]	0	(40,42]	1
(42,44]	0	(42,44]	0
(44,46]	1	(44,46]	0
(46,48]	0	(46,48]	1
(48,50]	0	(48,50]	0
(50,52]	0	(50,52]	0
(52,54]	0	(52,54]	0
(54,56]	0	(54,56]	0
(56,58]	0	(56,58]	0
(58,60]	0	(58,60]	0
		(60,62]	0
		(62,64]	0
		(64,66]	0

(60,62]	0	(66,68]	0
(62,64]	0	(68,70]	0
(64,66]	0	(70,72]	0
(66,68]	0		
(68,70]	0		
(70,72]	1		

7

```
valid <- !is.na(survey$Age) & !is.na(survey$Sex);
```

```
ages <- survey$Age[valid];
```

```
sex <- survey$Sex[valid];
```

```
rng <- range(ages);
```

```
breaks <- seq(floor(rng[1]), ceiling(rng[2]), by = 2);
```

```
male_ages <- ages[sex == "Male"];
```

```
female_ages <- ages[sex == "Female"];
```

```
male_class <- cut(male_ages, breaks = breaks, right = TRUE, include.lowest = TRUE);
```

```
female_class <- cut(female_ages, breaks = breaks, right = TRUE, include.lowest = TRUE);
```

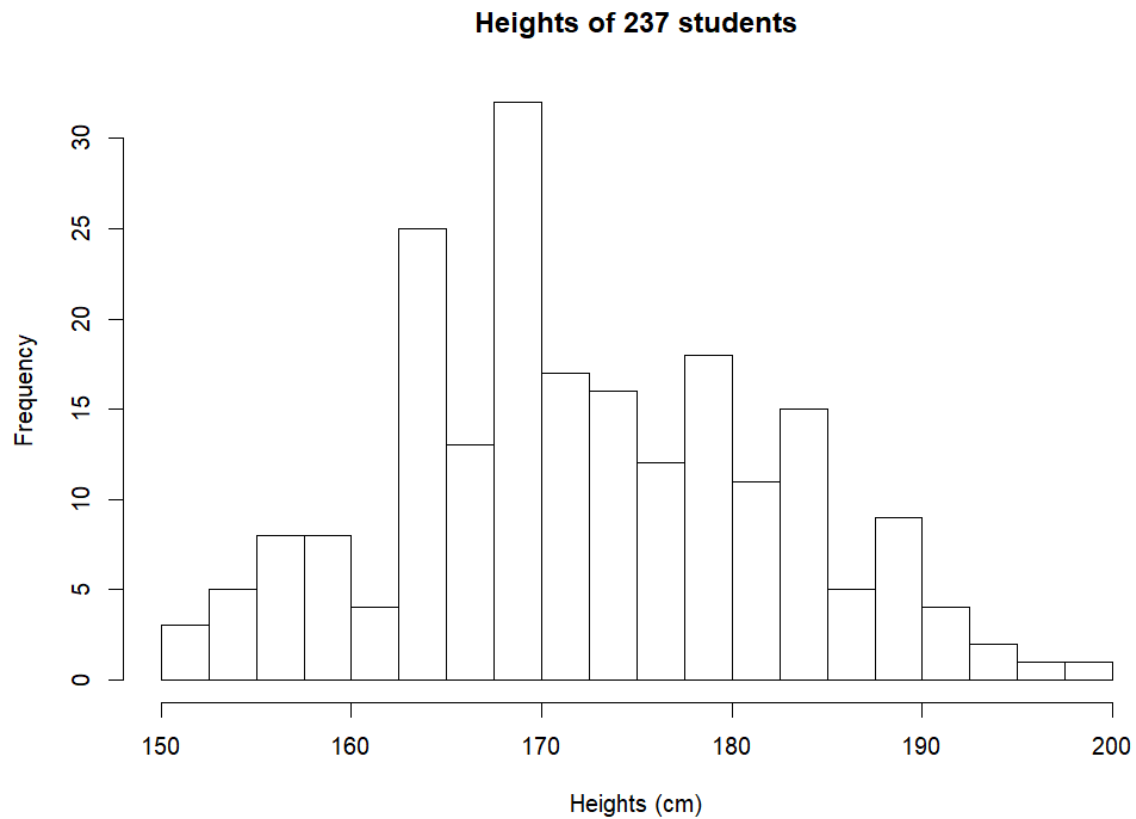
```
male_freq <- cbind(Male = table(male_class));
```

```
female_freq <- cbind(Female = table(female_class));
```

```
male_freq
```

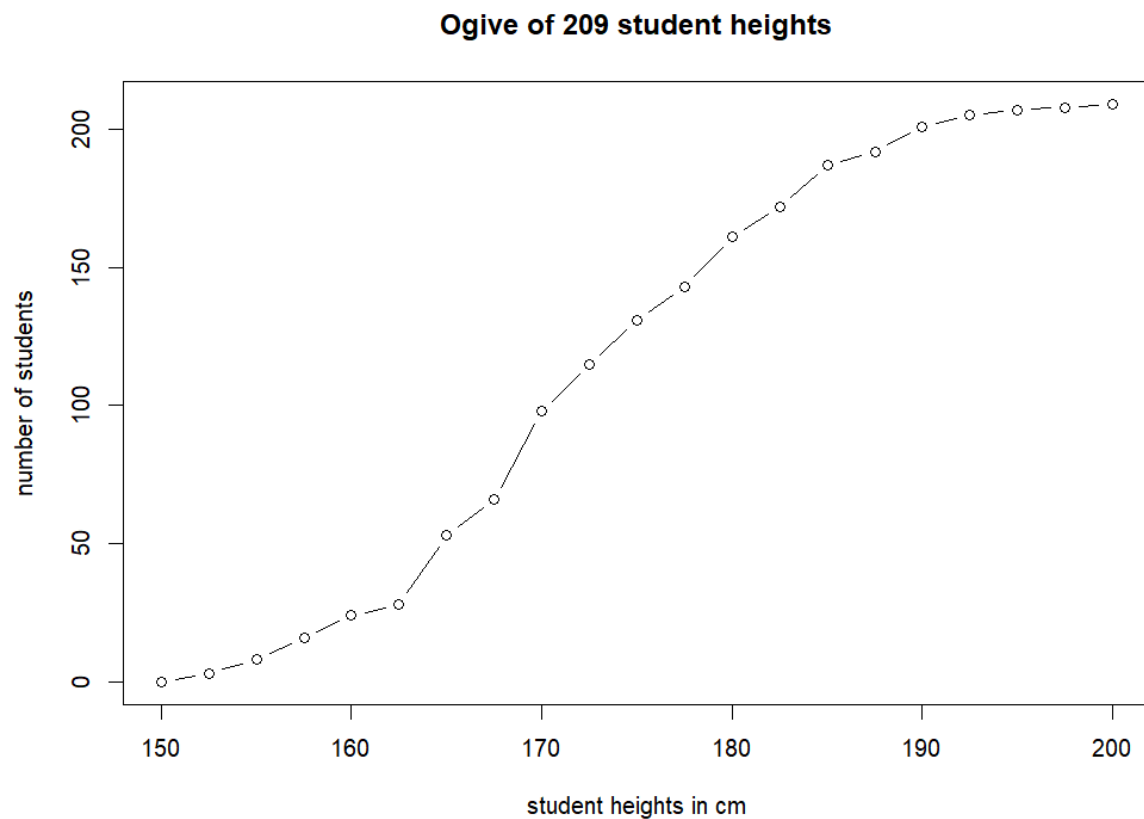
```
female_freq
```

Q8



```
# 8
hist(
  survey$Height,
  breaks = seq(150, 200, by = 2.5),
  xlab = "Heights (cm)",
  ylab = "Frequency",
  main = paste("Heights of", length(survey$Height), "students"),
  col = "white"
);
```

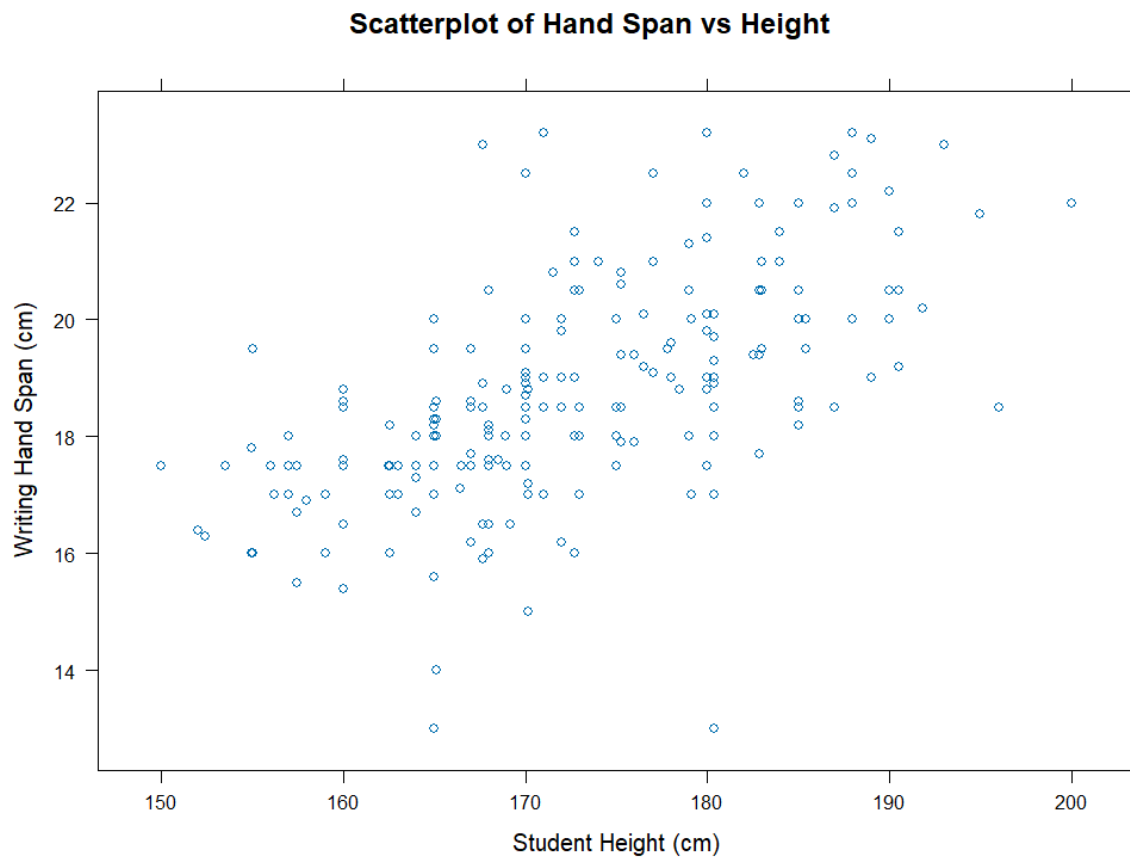
Q9



```
# 9
h <- hist(survey$Height,
  breaks = seq(150, 200, by = 2.5),
  plot = FALSE
);

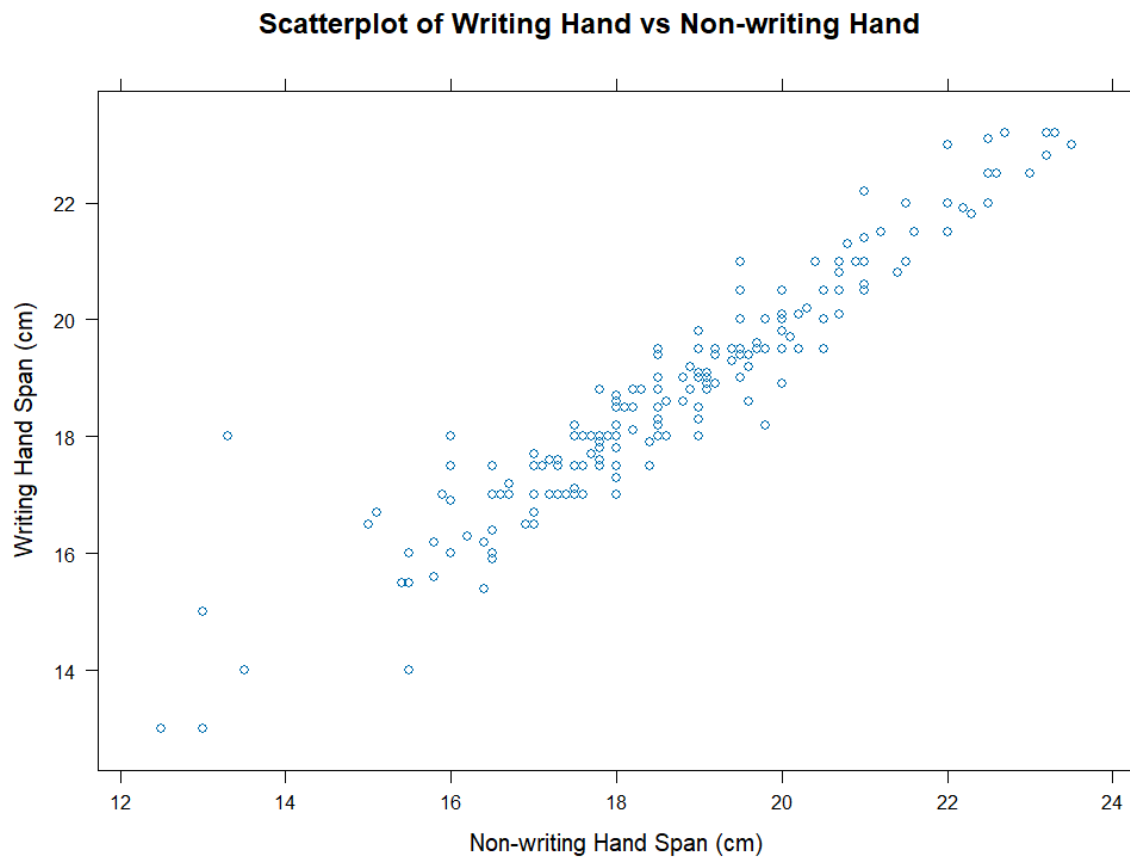
plot(h$breaks,
  c(0, cumsum(h$counts)),
  type = "b",
  pch = 1,
  xlab = "student heights in cm",
  ylab = "number of students",
  main = "Ogive of 209 student heights"
);
```


Q10



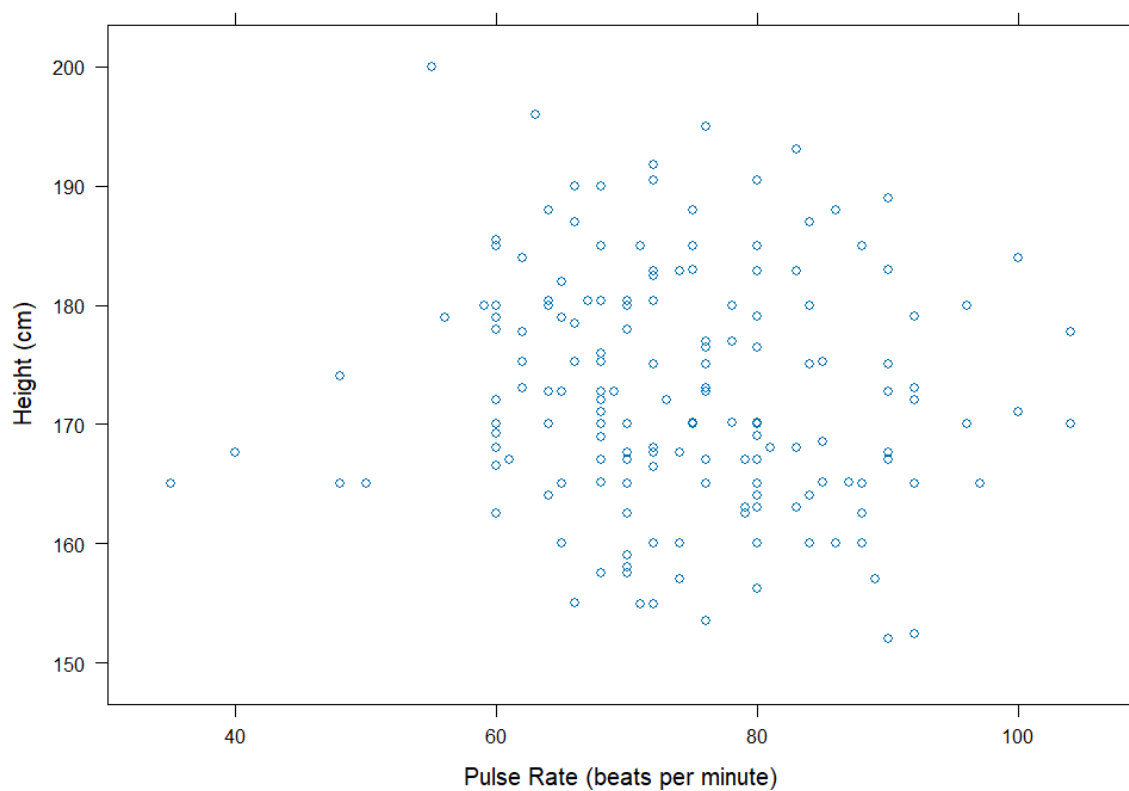
```
# 10
library(mosaic);
xyplot(survey$Wr.Hnd ~ survey$Height,
  xlab = "Student Height (cm)",
  ylab = "Writing Hand Span (cm)",
  main = "Scatterplot of Hand Span vs Height"
);
```

Q11



```
# 11
# Wr.Hnd vs NW.Hnd
xyplot(survey$Wr.Hnd ~ survey$NW.Hnd,
  xlab = "Non-writing Hand Span (cm)",
  ylab = "Writing Hand Span (cm)",
  main = "Scatterplot of Writing Hand vs Non-writing Hand"
);
```

Scatterplot of Height vs Pulse



```
# Height vs Pulse
xyplot(survey$Height ~ survey$Pulse,
       xlab = "Pulse Rate (beats per minute)",
       ylab = "Height (cm)",
       main = "Scatterplot of Height vs Pulse"
);
```