社統作業

姓名：王思勻

學號：105204027

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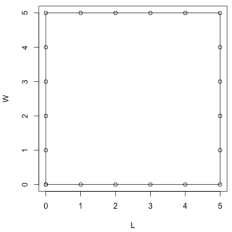
一、

1.

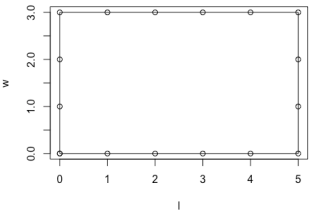
正方形：

```
> L=c(0,0,0,0,0,0,1,2,3,4,5,5,5,5,5,5,4,3,2,1,0)
> W=c(0,1,2,3,4,5,5,5,5,5,5,4,3,2,1,0,0,0,0,0,0)
> plot(L,W)
> lines(L,W)
```



長方形：

```
> l=c(0,0,0,0,1,2,3,4,5,5,5,5,4,3,2,1,0)
> w=c(0,1,2,3,3,3,3,3,3,2,1,0,0,0,0,0,0)
> plot(l,w)
> lines(l,w)
```



2.

```
> library(tmap)
> library(maptools)
Loading required package: sp
Checking rgeos availability: TRUE
> library(sp)
> map <- read_shape("/Users/angelwang/Desktop/台灣地圖.shp")
Warning message:
In readOGR(dir, base, verbose = FALSE, ...) : Z-dimension discarded
> plot(map)
> points(121.503071,24.941421,cex=2,pch=19,col="red")
> text(123,26,"New Taipei City, Xindian District")
```

3.

```
> iq=c(100,90,121,145,111)
> iq*6
[1] 600 540 726 870 666
```

二、課本：

p.40

```
> library(haven)
> GSS <- read_sav("/Users/angelwang/Desktop/GSS2012.sav")
> GSS
# A tibble: 1,457 × 49
      abany    abpoor       age    attend   bigbang
  <dbl+lbl> <dbl+lbl> <dbl+lbl> <dbl+lbl> <dbl+lbl>
1         1        NA        22         2        NA
2         1         1        21         0         1
3         1         2        42         0         1
4        NA        NA        49         0        NA
5        NA        NA        70         1        NA
6         1         1        50         0        NA
7        NA        NA        35         3        NA
8         2         2        24         3        NA
```

```
9         2        2       28        0       NA
10        1        1       28        2        1
# ... with 1,447 more rows, and 44 more variables:
#   cappun <dbl+lbl>, childs <dbl+lbl>,
#   class <dbl+lbl>, closeblk <dbl+lbl>,
#   degree <dbl+lbl>, educ <dbl+lbl>,
#   evolved <dbl+lbl>, fear <dbl+lbl>,
#   fechld <dbl+lbl>, fefam <dbl+lbl>,
#   getahead <dbl+lbl>, gunlaw <dbl+lbl>,
#   happy <dbl+lbl>, hrs1 <dbl+lbl>,
#   income06 <dbl+lbl>, letdie1 <dbl+lbl>,
#   letin1 <dbl+lbl>, marhomo <dbl+lbl>,
#   marital <dbl+lbl>, news <dbl+lbl>, obey <dbl+lbl>,
#   paeduc <dbl+lbl>, parsol <dbl+lbl>,
#   partnrs5 <dbl+lbl>, pillok <dbl+lbl>,
#   polviews <dbl+lbl>, postlife <dbl+lbl>,
#   pray <dbl+lbl>, premarsx <dbl+lbl>,
#   PRES08 <dbl+lbl>, racecen1 <dbl+lbl>,
#   rank <dbl+lbl>, relig <dbl+lbl>, region <dbl+lbl>,
#   satjob <dbl+lbl>, sex <dbl+lbl>,
#   sexfreq <dbl+lbl>, spanking <dbl+lbl>,
#   SPKMSLM <dbl+lbl>, thnkself <dbl+lbl>,
#   trust <dbl+lbl>, tvhours <dbl+lbl>,
#   wwwhr <dbl+lbl>, xmarsex <dbl+lbl>
> names(GSS)
 [1] "abany"    "abpoor"   "age"      "attend"
 [5] "bigbang"  "cappun"   "childs"   "class"
 [9] "closeblk" "degree"   "educ"     "evolved"
[13] "fear"     "fechld"   "fefam"    "getahead"
[17] "gunlaw"   "happy"    "hrs1"     "income06"
[21] "letdie1"  "letin1"   "marhomo"  "marital"
[25] "news"     "obey"     "paeduc"   "parsol"
[29] "partnrs5" "pillok"   "polviews" "postlife"
[33] "pray"     "premarsx" "PRES08"   "racecen1"
[37] "rank"     "relig"    "region"   "satjob"
[41] "sex"      "sexfreq"  "spanking" "SPKMSLM"
[45] "thnkself" "trust"    "tvhours"  "wwwhr"
[49] "xmarsex"
> GSS$attend
<Labelled double>
   [1]  2  0  0  0  1  0  3  3  0  2  7  0  0  8  3  7
  [17]  5  4  2  7  3  7  2  7  3  0  6 NA  7  0  4  4
  [33]  7  5  0  3  5  1  7  2  2  0  0  7  2  2  4  0
  [49]  5  0  7  4  7  0  6  6  5  4  0  5  2  7  7  7
  [65]  3  6  7  4  0  0  0  0  0  0  7  8  2  0  7  0
  [81]  3  4  4  8  3  1  0  1  0  8  1  0  0  5  2  0
  [97]  1  7  2  0  4  7  3  7  0  4  1  4  5  8  4  0
 [113]  7  3  8  0  7  7  6  0  5  2  5  4  7  0  2  0
 [129]  0  7  3  2  2  0  7  4  0  7  0  0  5  2  0  7
 [145]  7  3  7  4  8  7  3  2  3  7  0  1  7  3  8  2
 [161]  7  3  0  3  0  2  0  8  0  2  8  0  4  2  0  1
 [177]  2  2  3  7  2  8  2  5  0  3  7  3  3  2  0  5
 [193]  0  7  2  3  5  3  7  3  5  7  7  2  7  7  0  6
 [209]  6  6  0  8  0  5  8  1  2  1  0  7  7  3  2  7
 [225]  3  0  2  0  5  2  3  7  3  0  7  3  8  4  8  7
 [241]  0  6  7  5  7  2  4  0  2  2  0  3  2  7  2  0
 [257]  4  4  2  4  7  6  3  0  2  0  0  3  0  1  0  7
 [273]  7  0  0  3  2  0  8  7  1  0  3  0  0  0  1  0
 [289]  2  2  0  0  2  5  0  5  0  0  1  1  4  7  2  7
 [305]  7  0  2  6  7  0  0  2  5  0  2  2  7  8  3  4
```

[321] 8 0 2 3 5 4 2 7 2 5 4 3 7 7 5 0
[337] 2 4 0 2 6 0 1 0 7 1 0 7 2 5 2 4
[353] 0 2 0 4 0 1 0 0 0 3 7 0 8 1 3 0
[369] 5 2 5 4 0 1 8 0 4 2 0 0 4 0 3 7
[385] 4 8 6 4 3 5 3 8 8 5 6 7 7 0 1 5
[401] 7 3 2 5 8 0 5 2 0 8 8 3 8 2 4 0
[417] 8 8 0 0 2 1 3 3 8 3 5 0 2 3 0 2
[433] 4 0 5 2 5 2 7 5 2 3 2 2 2 1 2 0
[449] 7 0 2 2 7 7 3 3 0 6 7 0 3 3 2 4
[465] 2 1 0 0 0 7 0 6 8 4 2 2 4 0 7 2
[481] 7 8 8 3 0 0 0 0 1 7 8 6 3 4 7 6
[497] 6 1 3 3 4 0 2 2 4 7 4 4 7 7 4 2
[513] 3 2 5 2 7 7 1 0 0 2 0 1 2 0 0 1
[529] 4 2 0 1 7 7 4 2 3 3 7 0 5 0 1 3
[545] 2 0 1 1 6 0 2 7 8 7 0 1 8 0 3 2
[561] 2 4 0 7 0 3 5 7 4 7 7 7 5 4 7 4
[577] 3 5 0 5 7 1 2 1 7 2 6 7 7 7 4 7
[593] 2 3 0 0 7 2 6 0 0 2 7 7 3 7 4 7
[609] 7 2 7 3 0 1 7 0 2 2 0 8 5 4 4 4
[625] 7 5 0 7 0 5 4 7 8 8 0 2 5 5 1 0
[641] 0 0 0 4 5 3 7 7 6 0 1 0 7 5 3 2
[657] 3 7 4 0 8 5 7 7 5 4 3 1 2 0 7 5
[673] 7 7 5 4 2 2 7 0 1 4 0 0 7 2 0 4
[689] 7 4 0 1 5 0 0 0 0 0 0 7 8 2 2 2
[705] 3 7 1 0 0 0 1 3 8 8 7 2 7 7 7 7
[721] 2 8 7 3 1 7 0 0 7 6 8 7 7 0 7 4
[737] 6 0 3 7 5 2 6 2 0 8 7 8 7 7 6 0
[753] 0 0 0 0 1 0 6 8 8 3 2 2 2 6 0 0
[769] 1 0 0 2 7 5 0 0 5 2 8 2 0 1 0 7
[785] 0 0 2 0 0 2 0 2 2 8 0 7 0 6 2 2
[801] 0 7 0 7 7 0 4 8 NA 4 7 7 4 1 3 0
[817] 0 2 2 8 0 7 7 8 0 0 1 7 1 0 6 0
[833] 7 3 2 7 6 7 5 0 0 7 2 7 5 6 8 7
[849] 8 7 0 7 7 4 7 8 8 4 7 7 8 6 7 7
[865] 5 3 7 3 5 8 5 5 8 6 2 7 3 6 0 3
[881] 2 5 7 8 0 7 5 0 0 7 4 4 0 1 2 5
[897] 4 8 5 2 7 6 7 5 2 5 5 3 5 5 0 3
[913] 5 0 2 NA 0 2 0 5 5 7 0 2 7 0 0 7
[929] 7 2 7 7 7 1 2 3 0 7 8 7 2 2 4 7
[945] 8 0 3 7 3 2 8 5 5 2 0 5 0 3 7 6
[961] 5 8 7 7 7 7 7 0 3 5 7 0 2 5 5 0
[977] 8 0 5 5 5 7 2 7 0 7 4 3 0 0 1 0
[993] 4 2 2 5 7 3 3 7 8 8 0 5 7 7 2 4
[1009] 0 8 7 5 2 7 8 4 7 3 7 7 6 7 3 7
[1025] 5 5 7 0 0 7 7 0 5 0 5 0 7 5 3 2
[1041] 0 0 0 3 4 0 7 1 0 0 0 0 4 0 1 0
[1057] 1 0 0 0 0 0 0 0 0 1 8 7 2 5 0 0 5
[1073] 7 0 2 0 0 0 7 0 8 7 2 3 7 1 3 4
[1089] 0 0 3 8 3 4 7 3 7 7 6 2 3 0 7 0
[1105] 2 3 0 6 6 5 3 7 0 0 1 4 3 0 7 5
[1121] 5 7 0 0 0 2 7 2 0 7 0 0 5 3 5 2
[1137] 4 3 0 0 8 0 2 0 8 0 5 0 7 0 8 6
[1153] 7 3 7 7 8 0 8 3 0 6 5 7 8 7 8 7
[1169] 2 7 7 7 0 1 8 1 0 3 3 3 3 2 2 0
[1185] 8 0 0 0 7 7 2 2 1 5 0 7 3 0 2 7
[1201] 0 0 7 0 0 3 3 0 8 3 7 0 0 4 8 2
[1217] 1 7 2 7 2 0 5 7 8 0 2 7 0 3 3 0
[1233] 0 0 1 0 0 0 1 0 7 7 6 0 7 7 5 0
[1249] 2 7 2 0 0 0 2 0 1 3 0 0 6 7 4 2
[1265] 7 6 7 3 5 3 0 0 7 7 0 5 3 5 8 7

```
[1281]  2  0  4  8  8  7  0  4  0  3  2  7  3  5  7  4
[1297]  7  2  1  0  2  3  5  1  8  5  7  8  7  8  1  0
[1313]  4  0  8  6  7  0  0  0  1  7  0  3  0  8  0  8
[1329]  2  0  8  7  0  7  0  3  0  6  0  7  3  8  7  2
[1345]  6  0  8  1  5  6  4  2  7  6  1  3  5  1  7  5
[1361]  0  3  7  0  3  2  0  7  7  7 NA  7  5  1  7  7
[1377]  5  5  8  2  0  2  4  6  8  1  7  5  7  8  4  6
[1393]  5  8  8  7  0  8  7  5 NA  0  5  5  6  5  5  7
[1409]  3  0  4  4  0  8  2  0 NA  7  7  0  3  0  2  5
[1425]  7  0  2  7  1  2  7  1  8  0  2  2  0  2  4  1
[1441]  2  2  0  1  0  2  4  1  2  0  1  0  8  7  7  5
[1457]  0

Labels:
 value            label
     0            NEVER
     1   LT ONCE A YEAR
     2       ONCE A YEAR
     3 SEVRL TIMES A YR
     4      ONCE A MONTH
     5      2-3X A MONTH
     6  NRLY EVERY WEEK
     7        EVERY WEEK
     8 MORE THN ONCE WK
     9            DK,NA
> xx=GSS$attend
> xx
<Labelled double>
   [1]  2  0  0  0  1  0  3  3  0  2  7  0  0  8  3  7
  [17]  5  4  2  7  3  7  2  7  3  0  6 NA  7  0  4  4
  [33]  7  5  0  3  5  1  7  2  2  0  0  7  2  2  4  0
  [49]  5  0  7  4  7  0  6  6  5  4  0  5  2  7  7  7
  [65]  3  6  7  4  0  0  0  0  0  0  7  8  2  0  7  0
  [81]  3  4  4  8  3  1  0  1  0  8  1  0  0  5  2  0
  [97]  1  7  2  0  4  7  3  7  0  4  1  4  5  8  4  0
 [113]  7  3  8  0  7  7  6  0  5  2  5  4  7  0  2  0
 [129]  0  7  3  2  2  0  7  4  0  7  0  0  5  2  0  7
 [145]  7  3  7  4  8  7  3  2  3  7  0  1  7  3  8  2
 [161]  7  3  0  3  0  2  0  8  0  2  8  0  4  2  0  1
 [177]  2  2  3  7  2  8  2  5  0  3  7  3  3  2  0  5
 [193]  0  7  2  3  5  3  7  3  5  7  7  2  7  7  0  6
 [209]  6  6  0  8  0  5  8  1  2  1  0  7  7  3  2  7
 [225]  3  0  2  0  5  2  3  7  3  0  7  3  8  4  8  7
 [241]  0  6  7  5  7  2  4  0  2  2  0  3  2  7  2  0
 [257]  4  4  2  4  7  6  3  0  2  0  0  3  0  1  0  7
 [273]  7  0  0  3  2  0  8  7  1  0  3  0  0  0  1  0
 [289]  2  2  0  0  2  5  0  5  0  0  1  1  4  7  2  7
 [305]  7  0  2  6  7  0  0  2  5  0  2  2  7  8  3  4
 [321]  8  0  2  3  5  4  2  7  2  5  4  3  7  7  5  0
 [337]  2  4  0  2  6  0  1  0  7  1  0  7  2  5  2  4
 [353]  0  2  0  4  0  1  0  0  0  3  7  0  8  1  3  0
 [369]  5  2  5  4  0  1  8  0  4  2  0  0  4  0  3  7
 [385]  4  8  6  4  3  5  3  8  8  5  6  7  7  0  1  5
 [401]  7  3  2  5  8  0  5  2  0  8  8  3  8  2  4  0
 [417]  8  8  0  0  2  1  3  3  8  3  5  0  2  3  0  2
 [433]  4  0  5  2  5  2  7  5  2  3  2  2  2  1  2  0
 [449]  7  0  2  2  7  7  3  3  0  6  7  0  3  3  2  4
 [465]  2  1  0  0  0  7  0  6  8  4  2  2  4  0  7  2
 [481]  7  8  8  3  0  0  0  0  1  7  8  6  3  4  7  6
 [497]  6  1  3  3  4  0  2  2  4  7  4  4  7  7  4  2
```

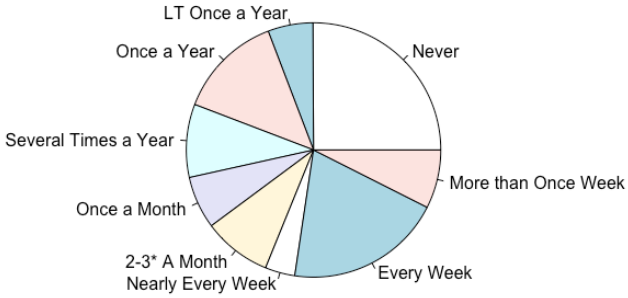
[513] 3 2 5 2 7 7 1 0 0 2 0 1 2 0 0 1
[529] 4 2 0 1 7 7 4 2 3 3 7 0 5 0 1 3
[545] 2 0 1 1 6 0 2 7 8 7 0 1 8 0 3 2
[561] 2 4 0 7 0 3 5 7 4 7 7 7 5 4 7 4
[577] 3 5 0 5 7 1 2 1 7 2 6 7 7 7 4 7
[593] 2 3 0 0 7 2 6 0 0 2 7 7 3 7 4 7
[609] 7 2 7 3 0 1 7 0 2 2 0 8 5 4 4 4
[625] 7 5 0 7 0 5 4 7 8 8 0 2 5 5 1 0
[641] 0 0 0 4 5 3 7 7 6 0 1 0 7 5 3 2
[657] 3 7 4 0 8 5 7 7 5 4 3 1 2 0 7 5
[673] 7 7 5 4 2 2 7 0 1 4 0 0 7 2 0 4
[689] 7 4 0 1 5 0 0 0 0 0 0 7 8 2 2 2
[705] 3 7 1 0 0 0 1 3 8 8 7 2 7 7 7 7
[721] 2 8 7 3 1 7 0 0 7 6 8 7 7 0 7 4
[737] 6 0 3 7 5 2 6 2 0 8 7 8 7 7 6 0
[753] 0 0 0 0 1 0 6 8 8 3 2 2 2 6 0 0
[769] 1 0 0 2 7 5 0 0 5 2 8 2 0 1 0 7
[785] 0 0 2 0 0 2 0 2 2 8 0 7 0 6 2 2
[801] 0 7 0 7 7 0 4 8 NA 4 7 7 4 1 3 0
[817] 0 2 2 8 0 7 7 8 0 0 1 7 1 0 6 0
[833] 7 3 2 7 6 7 5 0 0 7 2 7 5 6 8 7
[849] 8 7 0 7 7 4 7 8 8 4 7 7 8 6 7 7
[865] 5 3 7 3 5 8 5 5 8 6 2 7 3 6 0 3
[881] 2 5 7 8 0 7 5 0 0 7 4 4 0 1 2 5
[897] 4 8 5 2 7 6 7 5 2 5 5 3 5 5 0 3
[913] 5 0 2 NA 0 2 0 5 5 7 0 2 7 0 0 7
[929] 7 2 7 7 7 1 2 3 0 7 8 7 2 2 4 7
[945] 8 0 3 7 3 2 8 5 5 2 0 5 0 3 7 6
[961] 5 8 7 7 7 7 7 0 3 5 7 0 2 5 5 0
[977] 8 0 5 5 5 7 2 7 0 7 4 3 0 0 1 0
[993] 4 2 2 5 7 3 3 7 8 8 0 5 7 7 2 4
[1009] 0 8 7 5 2 7 8 4 7 3 7 7 6 7 3 7
[1025] 5 5 7 0 0 7 7 0 5 0 5 0 7 5 3 2
[1041] 0 0 0 3 4 0 7 1 0 0 0 0 4 0 1 0
[1057] 1 0 0 0 0 0 0 0 0 1 8 7 2 5 0 0 5
[1073] 7 0 2 0 0 0 7 0 8 7 2 3 7 1 3 4
[1089] 0 0 3 8 3 4 7 3 7 7 6 2 3 0 7 0
[1105] 2 3 0 6 6 5 3 7 0 0 1 4 3 0 7 5
[1121] 5 7 0 0 0 2 7 2 0 7 0 0 5 3 5 2
[1137] 4 3 0 0 8 0 2 0 8 0 5 0 7 0 8 6
[1153] 7 3 7 7 8 0 8 3 0 6 5 7 8 7 8 7
[1169] 2 7 7 7 0 1 8 1 0 3 3 3 3 2 2 0
[1185] 8 0 0 0 7 7 2 2 1 5 0 7 3 0 2 7
[1201] 0 0 7 0 0 3 3 0 8 3 7 0 0 4 8 2
[1217] 1 7 2 7 2 0 5 7 8 0 2 7 0 3 3 0
[1233] 0 0 1 0 0 0 1 0 7 7 6 0 7 7 5 0
[1249] 2 7 2 0 0 0 2 0 1 3 0 0 6 7 4 2
[1265] 7 6 7 3 5 3 0 0 7 7 0 5 3 5 8 7
[1281] 2 0 4 8 8 7 0 4 0 3 2 7 3 5 7 4
[1297] 7 2 1 0 2 3 5 1 8 5 7 8 7 8 1 0
[1313] 4 0 8 6 7 0 0 0 1 7 0 3 0 8 0 8
[1329] 2 0 8 7 0 7 0 3 0 6 0 7 3 8 7 2
[1345] 6 0 8 1 5 6 4 2 7 6 1 3 5 1 7 5
[1361] 0 3 7 0 3 2 0 7 7 7 NA 7 5 1 7 7
[1377] 5 5 8 2 0 2 4 6 8 1 7 5 7 8 4 6
[1393] 5 8 8 7 0 8 7 5 NA 0 5 5 6 5 5 7
[1409] 3 0 4 4 0 8 2 0 NA 7 7 0 3 0 2 5
[1425] 7 0 2 7 1 2 7 1 8 0 2 2 0 2 4 1
[1441] 2 2 0 1 0 2 4 1 2 0 1 0 8 7 7 5
[1457] 0

```
Labels:
 value            label
     0            NEVER
     1   LT ONCE A YEAR
     2       ONCE A YEAR
     3 SEVRL TIMES A YR
     4      ONCE A MONTH
     5      2-3X A MONTH
     6  NRLY EVERY WEEK
     7        EVERY WEEK
     8 MORE THN ONCE WK
     9            DK,NA
> table(GSS$attend)

  0   1   2   3   4   5   6   7   8
364  83 194 135  97 126  55 289 108
> sum(table(GSS$attend))
[1] 1451

> y <- table(GSS$attend)
> round((y/1457) *100,digits = 1)

   0    1    2    3    4    5    6    7    8
25.0  5.7 13.3  9.3  6.7  8.6  3.8 19.8  7.4

> sum(round((y/1457) *100,digits = 1))
[1] 99.6

> round((y/1451) *100,digits = 1)

   0    1    2    3    4    5    6    7    8
25.1  5.7 13.4  9.3  6.7  8.7  3.8 19.9  7.4

> sum(round((y/1451) *100,digits = 1))
[1] 100

> cumsum(round((y/1451) *100,digits = 1))
    0     1     2     3     4     5     6     7     8
 25.1  30.8  44.2  53.5  60.2  68.9  72.7  92.6 100.0
```

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	NEVER	364	25.0	25.1	25.1
	LT ONCE A YEAR	83	5.7	5.7	30.8
	ONCE A YEAR	194	13.4	13.4	44.2
	SEVRL TIMES A YR	135	9.3	9.3	53.5
	ONCE A MONTH	97	6.7	6.7	60.2
	2-3X A MONTH	126	8.6	8.7	68.8
	NRLY EVERY WEEK	55	3.8	3.8	72.6
	EVERY WEEK	289	19.8	19.9	92.6
	MORE THN ONCE WK	108	7.4	7.4	100.0
	Total	1451	99.6	100.0	
Missing	DK, NA	6	.4		
Total		1457	100.0		

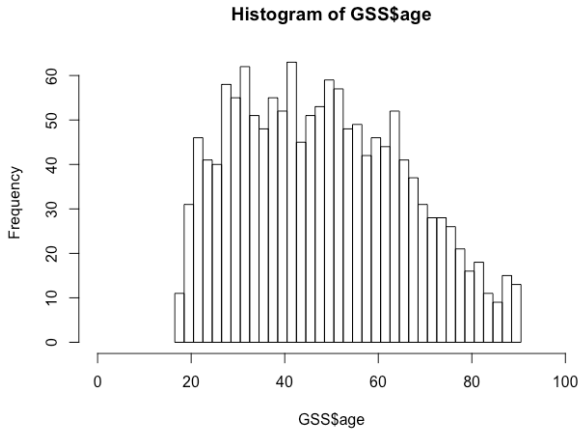
p.52

```
> pie(table(xx))
> snames <- c("Never","LT Once a Year","Once a Year","Several Times a Year","Once a Month","2-3* A Month","Nearly Every Week","Every Week","More than Once Week")
> pie(table(xx),labels = snames)
```



p.53

```
> hist(GSS$age,breaks = seq(16.5,91,2) , xlim = c(0,100) )
```



三、課本problems:

2.2 (小數點第二位以下四捨五入)
a. 34.83%
b. 0.07
c. 5.53
d. 56.67%
e. 1.31
f. 0.34
g. 1.79%
h. 1.82
i. 0.94
j. 0.17

2.4
a.

homicide rate per 100,000 population			homicide rate per 100,000 population		
State	1997	2012	Province	1997	2012
New Jersey	4.20	4.38	Nova Scotia	2.56	1.80
lowa	1.82	1.46	Quebec	1.80	1.34
Alabama	**10.29**	**7.01**	Ontario	1.56	1.20
Texas	6.83	4.39	Manitoba	2.72	**4.08**
California	7.99	4.95	British Columbia	**2.9**	1.52

Alabama and British Columbia have the highest homicide rates in 1997. Alabama and Manitoba have the highest rates in 2012. States seem to have the higher homicide rate.

b.

State	percent change	Province	percent change
New Jersey	4.29%	Nova Scotia	-29.69%
Iowa	-19.78%	Quebec	-25.56%
Alabama	-31.88%	Ontario	-23.08%
Texas	-35.72%	Manitoba	**50%**
California	-38.05%	British Columbia	**-47.59%**

Manitoba has the largest increase, and British Columbia has the largest decrease. Provinces seem to have the largest change in homicide rates.

2.6

Pretest

Scores	Frequency	Percentage
2-3	1	6.67%
4-5	2	13.33%
6-7	1	6.67%
8-9	2	13.33%
10-11	5	33.33%
12-13	2	13.33%
14-15	2	13.33%
16-17	0	0.00%
18-19	0	0.00%
20-21	0	0.00%
Total	15	99.99%

Posttest

Scores	Frequency	Percentage
2-3	0	0.00%
4-5	1	6.67%
6-7	1	6.67%
8-9	1	6.67%
10-11	2	13.33%
12-13	5	33.33%
14-15	1	6.67%
16-17	1	6.67%
18-19	1	6.67%
20-21	2	13.33%
Total	15	100.01%

2.9

a.b.c.

Score	Frequency	Midpoint	Percentage	Cumulative Frequency	Cumulative Percentage
0-9	3	4.5	12.0%	3	12.0%
10-19	7	14.5	28.0%	10	40.0%
20-29	6	24.5	24.0%	16	64.0%
30-39	0	34.5	0.0%	16	64.0%
40-49	2	44.5	8.0%	18	72.0%
50-59	2	54.5	8.0%	20	80.0%
60-69	3	64.5	12.0%	23	92.0%
70-79	0	74.5	0.0%	23	92.0%
80-89	0	84.5	0.0%	23	92.0%
90-99	2	94.5	8.0%	25	100.0%
Total	25		100.0%		

d. Most students thought that violence could be justified in few or no situations.

2.13

```
> GSS$relig
<Labelled double>
  [1] 2 2 1 1 1 1 1 2 4 4 2 1 4 1 2 2
 [17] 1 2 2 2 2 1 4 1 1 2 2 2 2 4 5 2
 [33] 1 1 4 1 5 3 2 3 3 3 4 2 4 4 3 5
 [49] 1 1 1 1 1 5 1 1 2 1 4 2 4 1 5 5
```

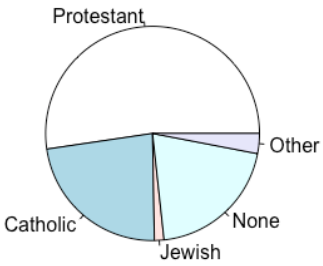
[65] 4 2 1 2 3 4 4 4 1 4 2 1 4 4 2 2
[81] 3 5 4 5 1 2 4 2 3 1 1 1 1 1 2 4
[97] 2 1 4 1 2 1 2 1 2 2 4 1 1 1 4 4
[113] 1 1 1 2 2 2 2 4 2 2 2 2 1 4 5 4
[129] 5 1 1 3 3 4 2 2 1 1 4 4 1 2 4 1
[145] 1 2 2 2 1 1 1 4 2 2 4 4 1 1 1 2
[161] 2 4 4 2 1 2 4 1 1 4 1 2 2 2 2 4
[177] 1 4 2 2 2 1 1 2 1 2 2 2 2 2 5 1
[193] 1 1 1 1 2 2 1 2 2 1 1 1 1 1 1 1
[209] 1 1 4 1 1 2 1 4 1 1 4 2 3 4 2 1
[225] 4 1 1 4 2 2 1 2 1 4 5 1 1 1 1 1
[241] 4 1 1 1 1 4 1 4 2 4 2 2 2 2 2 4
[257] 1 2 3 1 2 1 2 4 2 4 4 2 2 4 5 1
[273] 2 4 4 1 2 2 1 2 4 2 2 2 1 2 4 4
[289] 4 4 4 4 2 1 4 4 4 4 1 4 5 2 1 1
[305] 1 2 4 2 2 1 2 4 2 4 2 2 1 1 1 1
[321] 5 4 2 1 1 1 3 1 1 5 3 2 1 1 1 2
[337] 1 1 4 1 1 3 4 4 1 5 1 2 2 2 2 5
[353] 4 4 4 1 1 1 1 4 2 4 1 1 1 4 4 4
[369] 1 5 1 2 2 2 2 4 2 4 4 4 1 4 1 1
[385] 2 1 2 4 1 1 1 1 1 2 1 1 1 2 1 1
[401] 1 1 1 1 1 4 1 1 4 1 1 1 1 4 1 2
[417] 1 1 4 2 2 4 1 3 1 1 1 1 2 5 4 5
[433] 1 4 1 4 1 4 1 2 4 2 1 4 2 2 4 1
[449] 1 2 1 1 2 2 1 1 4 1 1 4 1 4 4 4
[465] 5 2 4 2 2 1 1 1 1 4 1 1 2 4 1 2
[481] 1 1 1 1 2 4 4 4 2 1 1 2 2 1 2 1
[497] 1 4 2 1 1 4 2 1 2 2 2 2 2 2 2 1
[513] 2 2 1 4 1 1 1 NA 4 1 4 1 4 4 4 4
[529] 2 1 4 1 1 1 4 1 2 1 2 1 2 1 1 2
[545] 1 4 4 2 1 4 4 1 1 1 1 1 2 4 2 5
[561] 4 1 1 2 2 1 3 5 1 1 1 1 1 5 1 1
[577] 1 1 4 1 1 1 2 1 1 1 1 2 1 1 2 1
[593] 1 1 5 4 1 2 2 4 1 4 1 2 4 1 2 1
[609] 1 2 1 1 1 2 1 2 1 2 1 1 1 1 4 1
[625] 1 1 2 2 1 1 1 1 1 1 2 1 4 2 1 1
[641] 4 1 4 1 1 1 1 1 1 4 1 1 1 1 4 4
[657] 1 1 2 2 1 2 2 1 1 1 2 1 1 1 1 1
[673] 4 2 2 2 1 1 1 4 5 1 4 4 1 4 4 2
[689] 2 2 1 1 1 1 4 1 4 1 5 2 1 2 2 1
[705] 1 1 2 4 4 4 4 1 2 2 1 1 1 1 1 2
[721] 1 1 2 2 2 2 4 4 1 1 1 1 1 4 1 1
[737] 1 1 1 1 1 1 1 4 4 1 1 1 1 1 3 2
[753] 4 1 4 4 2 4 1 2 1 2 2 1 4 2 2 4
[769] 1 4 4 4 2 2 1 2 1 5 2 1 4 2 4 1
[785] 4 4 4 4 1 1 2 2 4 1 4 4 4 4 2 2
[801] 4 1 2 1 1 1 1 1 5 1 2 1 4 4 1 5
[817] 4 2 1 1 1 1 1 1 4 2 4 1 1 1 1 2
[833] 1 2 1 1 1 1 1 4 1 1 1 1 1 1 1 1
[849] 1 1 2 1 1 1 1 1 1 1 2 1 1 1 1 2
[865] 5 1 1 1 1 1 1 1 1 1 1 1 1 1 4 1
[881] 1 1 2 2 4 1 1 1 4 1 4 1 1 1 NA 1
[897] 2 1 1 4 1 1 1 2 1 1 1 1 1 5 1 2
[913] 1 4 1 NA 4 1 4 4 1 1 2 1 1 1 1 1
[929] 1 1 1 1 1 1 2 1 NA 1 1 1 1 1 1 1
[945] 5 4 1 1 1 1 1 4 1 1 1 1 1 1 1 2
[961] 1 1 2 1 1 1 1 1 5 1 2 5 1 1 1 1
[977] 1 1 1 1 1 1 1 1 1 4 1 2 4 2 5 4 1
[993] 2 4 1 1 1 2 2 1 1 1 2 2 1 2 1 5
[1009] 1 1 1 1 1 1 1 2 2 1 1 2 2 2 1 2

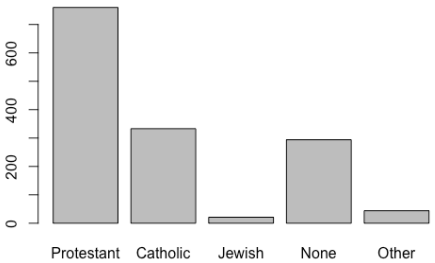
```
[1025]  2  1  1  4  4  1  2  4  1  2  2  4  2  2  1  2
[1041]  2  4  2  1  1  4  1  1  4  4  4  4  2  1  2  3
[1057]  4  4  4  4  4  1  2  1  1  1  1  4  1  1  4  2
[1073]  1  1  1  1  4  4  1  1  2  1  2  1  1  1  2  1
[1089]  2  4  2  1  1  1  1  2  2  2  1  2  1  4  2  4
[1105]  1  1  4  1  2  2  2  2  5  1  4  1  2  1  2  1
[1121]  1  2  1  4  2  1  2  2  2  1  1  4  1  1  1  1
[1137]  1  5  1  4  1  1  4  1  2  1  2  2  1  2  1  1
[1153]  1  1  1  2  1  1  1  1 NA  1  1  2  1  2  2  2
[1169]  1  2  1  1  4  4  1  1  4  1  1  2  1  1  2  4
[1185]  1  1  4  1  2  1  4  1  4  1  1  1  1  1  1  1
[1201]  1  4  2  2  1  2  2  1  1  4  1  5  4  2  1  2
[1217]  4  1  2  1  4  4  2  2  1  1  1  1  4  2  1  4
[1233]  4  4  4  4  4  4  4  1  1  2  1  1  1  1  1  1
[1249]  4  4  1  4  4  4  1  4  1  3  4  4  2  2  2  1
[1265]  1  2  1  5  1  2  4  1  1  1  4  1  1  2  1  1
[1281]  5  4  1  1  1  1  4  1  2  1  2  1  1  1  2  1
[1297]  1  1  1  1  1  1  1  1  1  1  4  1  2  4  1  4
[1313]  1  4  1  1  1  1  4  4  1  1  4  1  4  1  4  1
[1329]  1  1  1  2  4  1  1  2  2  1  1  1  1  2  1  1
[1345]  1  1  1  1  1  1  5  1  1  1  2  1  2  4  1  1
[1361]  1  1  1  4  1  2  4  1  1  1  4  1  1  1  1  1
[1377]  1  1  1  1  4  1  1  1  1  1  1  1  1  1  1  1
[1393]  1  1  1  1  4  1  1  1  1  4  1  1  1  1  4  1
[1409]  1  1  1  1  1  1  1  1  1  1  1  2  1  4  4  1
[1425]  1  4  1  1  1  2  1  1  1  4  1  1  4  4  2  1
[1441]  2  1  4  1  4  2  1  4  4  1  3  2  4  2  2  2
[1457]  1
```

Labels:

value	label
0	IAP
1	PROTESTANT
2	CATHOLIC
3	JEWISH
4	NONE
5	OTHER
6	BUDDHISM
7	HINDUISM
8	OTHER EASTERN
9	MOSLEM/ISLAM
10	ORTHODOX-CHRISTIAN
11	CHRISTIAN
12	NATIVE AMERICAN
13	INTER-NONDENOMINATIONAL
98	DK
99	NA

```
> table(GSS$relig)

  1   2   3   4   5
760 333  21 294  44
> snames <- c("Protestant","Catholic","Jewish","None","Other")
> pie(table(GSS$relig),labels = snames)
> barplot(table(GSS$relig),names=snames)
```





We can tell that “Protestant” is the most common religious denomination.

```
> table(GSS$hrs1)

  1   4   5   7   8   9  10  11  12  14  15  16  17
  1   6   1   1   9  34   4   1   6   1  11   9   2
 18  19  20  21  22  23  24  25  26  27  28  29  30
  3   1  36   1   3   1  11  13   1   1   1   1  36
 31  32  33  34  35  36  37  38  39  40  41  42  43
  1  17   3   4  26  11   8  17   3 253   4  13   8
 44  45  46  47  48  49  50  52  53  55  56  57  58
  9  42  10   4  21   2  60   6   2  28   4   2   2
 59  60  64  65  68  70  72  77  80  86  89
  1  58   2  10   3  13   3   1   7   1   4
> hist(GSS$hrs1,labels=TRUE,breaks<-seq(0,100,10))
> "hrs1"<-c(5,15,25,35,45,55,65,75,85,95)
> "Frequency"<-c(56,70,69,343,173,103,28,11,5,0)
> plot(hrs1,Frequency,type = "l")
```

We can tell that most people worked 30 to 40 hours from the graphs.