Estadística (M)

Resolución del ejercicio hecho en clase de Estadística Descriptiva

Datos: Todas las muestras son de tamaño 100.

```
a) >summary(DietaA)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  68.00   90.75   99.00   98.68  105.20  121.00
> summary(DietaB)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  68.00   79.00   94.50   94.46  110.20  122.00
> summary(DietaC)
   Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  68.00   70.00   73.00   77.29   81.00  121.00
> mean(gluco,trim=0.1)
dietaa dietab dietac
98.525 94.500 75.300
> mean(gluco,trim=0.2)
  dietaa   dietab   dietac
98.53333 94.40000 74.50000

b)  Varianza muestral
> var(DietaA)
[1] 103.7147
> var(DietaB)
[1] 280.4125
> var(DietaC)
[1] 112.006
#Desvío Muestral:  raíz cuadrada de la varianza muestral
> sqrt(var(DietaA))
[1] 10.18404
> sqrt(var(DietaB))
[1] 16.74552
> sqrt(var(DietaC))
[1] 10.58329
 #Distancia Intercuartos
 ##¿Cómo hacemos para obtener el primer cuarto?
> median(sort(DietaA)[1:50])
[1] 90.5
> median(sort(DietaB)[1:50])
[1] 79
> median(sort(DietaC)[1:50])
[1] 70
> ##¿Y el tercer cuarto?
> median(sort(DietaA)[51:100])
[1] 105.5
> median(sort(DietaB)[51:100])
[1] 110.5
> median(sort(DietaC)[51:100])
[1] 81
> ##Luego, las distancias intercuartos de cada uno son:
> median(sort(DietaA)[51:100])-median(sort(DietaA)[1:50])
```

```
[1] 15
> median(sort(DietaB)[51:100])-median(sort(DietaB)[1:50])
[1] 31.5
> median(sort(DietaC)[51:100])-median(sort(DietaC)[1:50])
[1] 11
> #Mad
> mad(DietaA)
[1] 11.1195
> mad(DietaB)
[1] 22.9803
> mad(DietaC)
[1] 5.9304

c) > quantile(DietaA) #Da los percentiles 0% (mínimo), 25%, 50%, 75% y 100%(máximo)
   0%    25%    50%    75%   100%
 68.00  90.75  99.00 105.25 121.00
> quantile(DietaB)
   0%    25%    50%    75%   100%
 68.00  79.00  94.50 110.25 122.00
> quantile(DietaC)
  0%  25%  50%  75% 100%
  68   70   73   81  121
#Percentiles 10% y 90%
> quantile(DietaA,0.10)
10%
 86
> quantile(DietaB,0.10)
 10%
75.8
> quantile(DietaC,0.10)
10%
 68
> quantile(DietaA,0.90)
  90%
111.1
> quantile(DietaB,0.90)
90%
115
> quantile(DietaC,0.90)
90%
 90
> #Observación: Para obtener las distancias intercuartiles podemos hacer:
> quantile(DietaA,0.75)-quantile(DietaA,0.25)
 75%
14.5
> quantile(DietaB,0.75)-quantile(DietaB,0.25)
  75%
31.25
> quantile(DietaC,0.75)-quantile(DietaC,0.25)
75%
 11
> #Rango muestral
> range(DietaA)
```

[1] 68 121
> range(DietaB)
[1] 68 122
> range(DietaC)
[1] 68 121

d) >stem(DietaA)

  The decimal point is 1 digit(s) to the right of the |

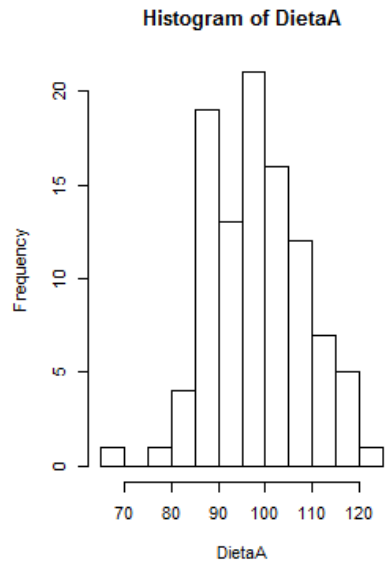
   6 | 8
   7 |
   8 | 011456666667777888899
   9 | 000112233455555566667777788999999
  10 | 000001122222244445555668888999
  11 | 000111234566899
  12 | 1

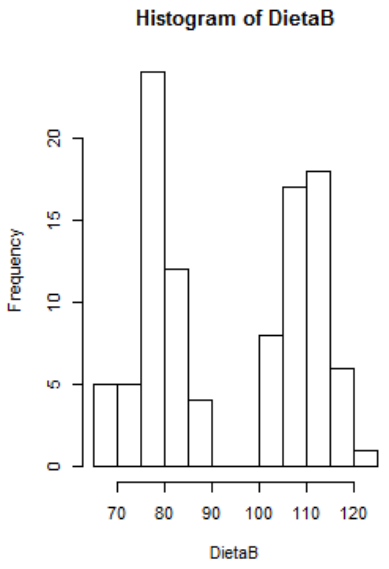
> stem(DietaB)
  The decimal point is 1 digit(s) to the right of the |

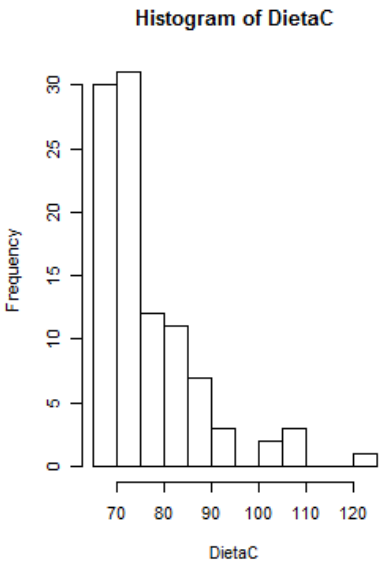
   6 | 889
   7 | 00233446666677778889999999
   8 | 00000001222233333346678
   9 |
  10 | 1124445566666678899999
  11 | 000111111222234455555778899
  12 | 2
> stem(DietaC)

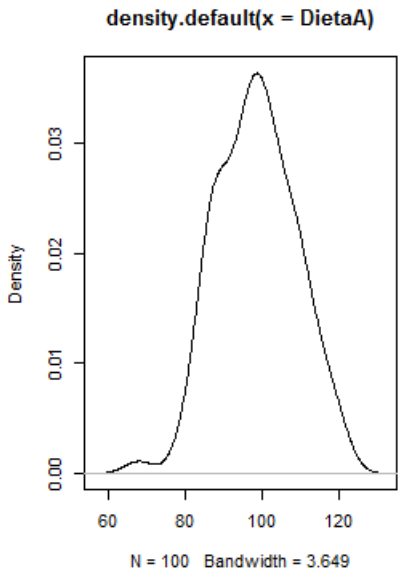
  The decimal point is 1 digit(s) to the right of the |

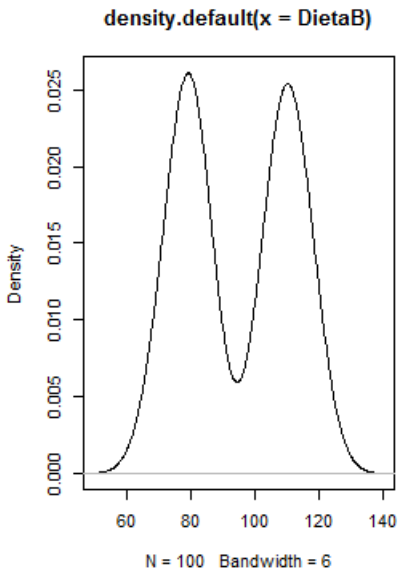
   6 | 88888888888999999999
   7 | 000000000011111112222222233333333444455556788999999
   8 | 0000111222344556679
   9 | 000455
  10 | 1379
  11 | 0
  12 | 1

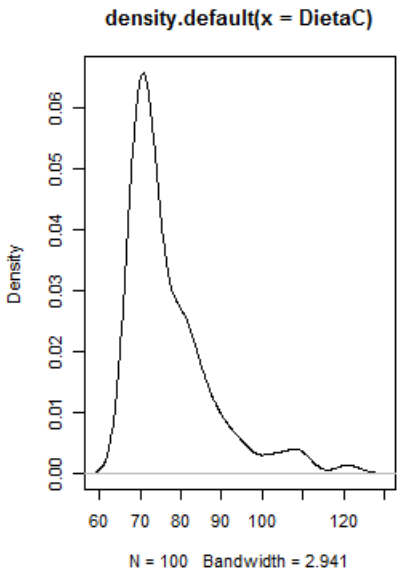

Histogram of DietaA
Frequency
0
5
10
15
20
70
80
90
100
110
120
DietaA

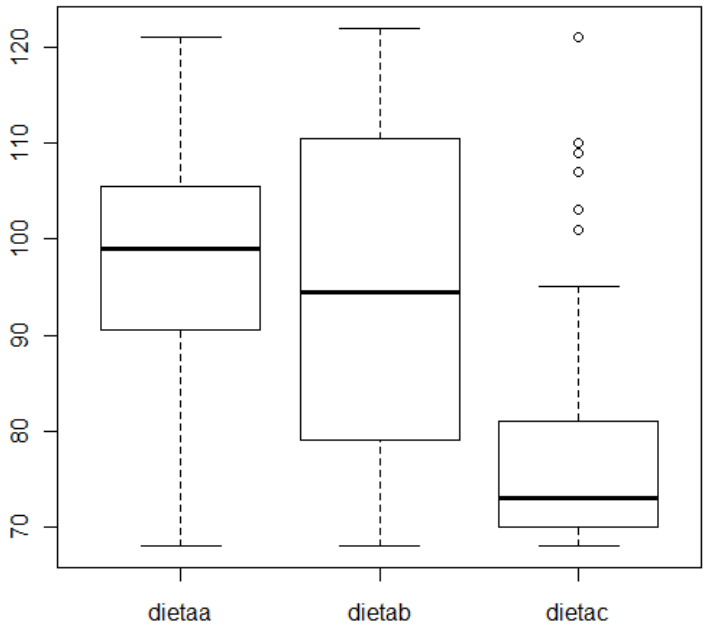

Histogram of DietaB
Frequency
0
5
10
15
20
70
80
90
100
110
120
DietaB

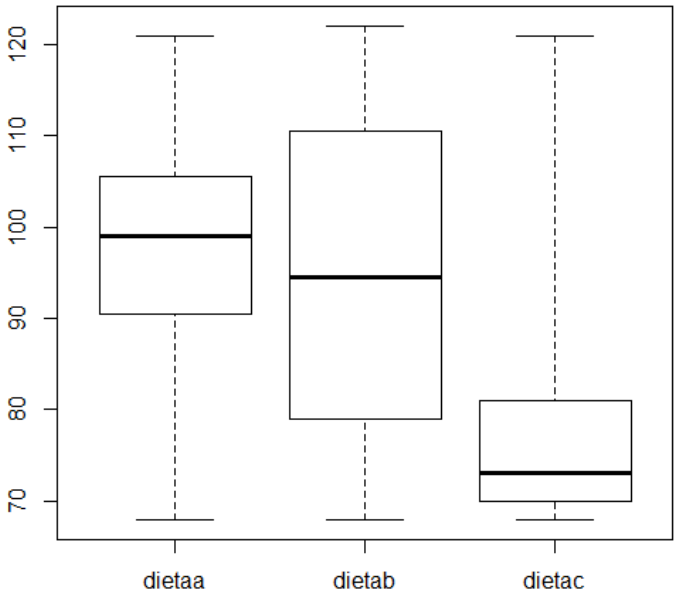

Histogram of DietaC
Frequency
0
5
10
15
20
25
30
70
80
90
100
110
120
DietaC

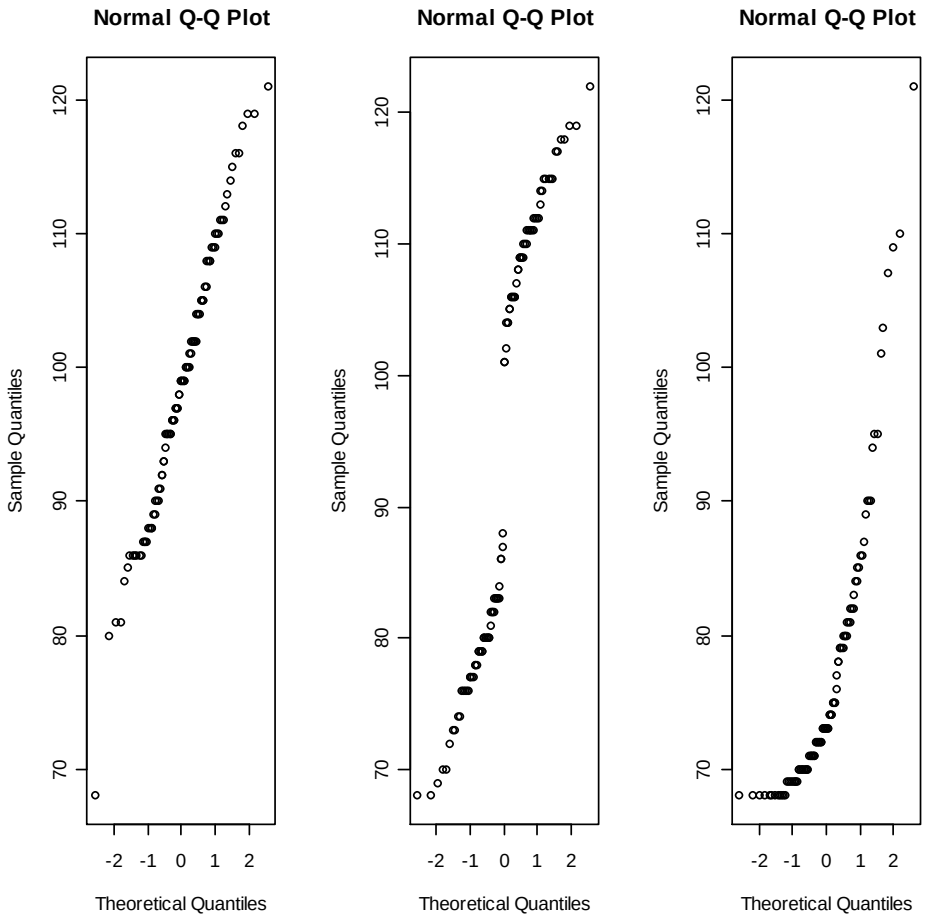

density.default(x = DietaA)
Density
0.00
0.01
0.02
0.03
60
80
100
120
N = 100 Bandwidth = 3.649


density.default(x = DietaB)
Density
0.000
0.005
0.010
0.015
0.020
0.025
60
80
100
120
140
N = 100 Bandwidth = 6


density.default(x = DietaC)
Density
0.00
0.01
0.02
0.03
0.04
0.05
0.06
60
70
80
90
100
120
N = 100 Bandwidth = 2.941


120
110
100
90
80
70
dietaa
dietab
dietac


120
110
100
90
80
70
dietaa
dietab
dietac


Normal Q-Q Plot
Sample Quantiles
Theoretical Quantiles
70
80
90
100
110
120
-2
-1
0
1
2
Normal Q-Q Plot
Sample Quantiles
Theoretical Quantiles
70
80
90
100
110
120
-2
-1
0
1
2
Normal Q-Q Plot
Sample Quantiles
Theoretical Quantiles
70
80
90
100
110
120
-2
-1
0
1
2