**EJERCICIOS EN R**

**1**

auto=c(2,4,7,10,12,10,14,10,15,12)

> table(auto)

auto

2 4 7 10 12 14 15

1 1 1 3 2 1 1

> table(auto)/length(auto)

auto

2 4 7 10 12 14 15

0.1 0.1 0.1 0.3 0.2 0.1 0.1

> cumsum(table(auto))

2 4 7 10 12 14 15

1 2 3 6 8 9 10

> cumsum(table(auto)/length(auto))

2 4 7 10 12 14 15

0.1 0.2 0.3 0.6 0.8 0.9 1.0

> plot(table(auto),type="h",col="red",xlab="x",ylab="f(x)",main="Frecuencia Absoluta")

> abline(h=0,col="gray")



summary(auto)

Min. 1st Qu. Median Mean 3rd Qu. Max.

2.00 7.75 10.00 9.60 12.00 15.00

> mean(auto)

[1] 9.6

> median(auto)

[1] 10

> var(auto)

[1] 17.37778

> sd(auto)

[1] 4.168666

> sd(auto)/mean(auto)

[1] 0.4342361

**2**

hora=c(rep(0,43),rep(10,26),rep(20,16),rep(30,9),rep(40,6))

> table(hora)

hora

0 10 20 30 40

43 26 16 9 6

> plot(table(hora),type="h",col="blue",xlab="x",ylab="f(x)",main="Frecuencia Absoluta")

> abline(h=0,col="gray")

> summary(hora)

Min. 1st Qu. Median Mean 3rd Qu. Max.

0.0 0.0 10.0 10.9 20.0 40.0

> var(hora)

[1] 149.6869

> sd(hora)

[1] 12.23466

> sd(hora)/mean(hora)

[1] 1.122446



**3**

litro=c(rep(0,6),rep(1,4),rep(2,6),rep(3,7),rep(4,10),rep(5,7),rep(6,6),rep(7,4))

> table(litro)

litro

0 1 2 3 4 5 6 7

6 4 6 7 10 7 6 4

> cumsum(table(litro))

0 1 2 3 4 5 6 7

6 10 16 23 33 40 46 50

> table(litro)/length(litro)

litro

0 1 2 3 4 5 6 7

0.12 0.08 0.12 0.14 0.20 0.14 0.12 0.08

> cumsum(table(litro))/length(litro)

0 1 2 3 4 5 6 7

0.12 0.20 0.32 0.46 0.66 0.80 0.92 1.00

> plot(table(litro),type="h",col="green",xlab="x",ylab="f(x)",main="Frecuencia Absoluta")

> abline(h=0,col="gray")



> summary(litro)

Min. 1st Qu. Median Mean 3rd Qu. Max.

0.00 2.00 4.00 3.52 5.00 7.00

> quantile(litro,0.25)

25%

2

> quantile(litro,0.5)

50%

4

> quantile(litro,0.75)

75%

5

> quantile(litro,0.1)

10%

0

> quantile(litro,0.5)

50%

4

> quantile(litro,0.42)

42%

3

> quantile(litro,0.96)

96%

7

> var(litro)

[1] 4.458776

> sd(litro)

[1] 2.111581

> sd(litro)/mean(litro)

[1] 0.599881

**4** lluvia=c(28.3,29.3,30.7,30.7,31.2,31.7,32.4,32.8,34.3,34.7,35.2,35.3,35.7,35.7,36.2,36.3,36.8,37.0,38.4,41.3,41.3,41.5,42.3,43.0,43.2,43.2,43.6,45.2,46.5,47.6)

> table(cut(lluvia,6))

(28.3,31.5] (31.5,34.7] (34.7,38] (38,41.2] (41.2,44.4] (44.4,47.6]

5 5 8 1 8 3

> table(cut(lluvia,6))/length(cut(lluvia,6))

(28.3,31.5] (31.5,34.7] (34.7,38] (38,41.2] (41.2,44.4] (44.4,47.6]

0.16666667 0.16666667 0.26666667 0.03333333 0.26666667 0.10000000

> cumsum(table(cut(lluvia,6)))

(28.3,31.5] (31.5,34.7] (34.7,38] (38,41.2] (41.2,44.4] (44.4,47.6]

5 10 18 19 27 30

> cumsum(table(cut(lluvia,6)))/length(cut(lluvia,6))

(28.3,31.5] (31.5,34.7] (34.7,38] (38,41.2] (41.2,44.4] (44.4,47.6]

0.1666667 0.3333333 0.6000000 0.6333333 0.9000000 1.0000000

hist((lluvia),breaks=c(28,31.5,34.7,38,41.2,44.4,47.6),xlab="x",ylab="f(x)",main="Precipitación anual de lluvias, en décimas de cm.",xlim=c(25,50))



summary(lluvia)

Min. 1st Qu. Median Mean 3rd Qu. Max.

28.30 33.17 36.25 37.38 42.10 47.60

> quantile(lluvia,0.2)

20%

32.26

> quantile(lluvia,0.8)

80%

43.04

> quantile(lluvia,0.32)

32%

34.84

> quantile(lluvia,0.73)

73%

41.636