

# PECL 1

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## Satelites

Satelites Menores de Urano, que hemos utilizado en la descripción teórica del tema. En texto plano, txt. Obteniendo los valores de las mismas magnitudes cuyo valor hemos calculado de forma manual

```
#Cargamos datos de un fichero de texto plano
data <- read.table("satelites.txt",header = TRUE)
radios<-data[,2]

#Media
mean(radios)

## [1] 25.08333

#Mediana
median(radios)

## [1] 24.5

#Desviacion tipica
sd(radios)

## [1] 8.857029

#Rango Intercuartil
IQR(radios)

## [1] 11.75

#Cuartiles

#Primer Cuartil
quantile(radios,.25)

## 25%
## 19

#Segundo Cuartil
quantile(radios,.50)
```

```

## 50%
## 24.5

#Tercer Cuartil
quantile(radios,.75)

## 75%
## 30.75

#Percentiles

for (i in 1:99){
  cat(paste("Percentil ", i, " =>"))
  cat(quantile(radios,i/100))
  cat("\n")
}

## Percentil 1 =>13.22
## Percentil 2 =>13.44
## Percentil 3 =>13.66
## Percentil 4 =>13.88
## Percentil 5 =>14.1
## Percentil 6 =>14.32
## Percentil 7 =>14.54
## Percentil 8 =>14.76
## Percentil 9 =>14.98
## Percentil 10 =>15.1
## Percentil 11 =>15.21
## Percentil 12 =>15.32
## Percentil 13 =>15.43
## Percentil 14 =>15.54
## Percentil 15 =>15.65
## Percentil 16 =>15.76
## Percentil 17 =>15.87
## Percentil 18 =>15.98
## Percentil 19 =>16.36
## Percentil 20 =>16.8
## Percentil 21 =>17.24
## Percentil 22 =>17.68
## Percentil 23 =>18.12
## Percentil 24 =>18.56
## Percentil 25 =>19
## Percentil 26 =>19.44
## Percentil 27 =>19.88
## Percentil 28 =>20
## Percentil 29 =>20
## Percentil 30 =>20
## Percentil 31 =>20
## Percentil 32 =>20
## Percentil 33 =>20
## Percentil 34 =>20

```

```
## Percentil 35 =>20
## Percentil 36 =>20
## Percentil 37 =>20.14
## Percentil 38 =>20.36
## Percentil 39 =>20.58
## Percentil 40 =>20.8
## Percentil 41 =>21.02
## Percentil 42 =>21.24
## Percentil 43 =>21.46
## Percentil 44 =>21.68
## Percentil 45 =>21.9
## Percentil 46 =>22.3
## Percentil 47 =>22.85
## Percentil 48 =>23.4
## Percentil 49 =>23.95
## Percentil 50 =>24.5
## Percentil 51 =>25.05
## Percentil 52 =>25.6
## Percentil 53 =>26.15
## Percentil 54 =>26.7
## Percentil 55 =>27.1
## Percentil 56 =>27.32
## Percentil 57 =>27.54
## Percentil 58 =>27.76
## Percentil 59 =>27.98
## Percentil 60 =>28.2
## Percentil 61 =>28.42
## Percentil 62 =>28.64
## Percentil 63 =>28.86
## Percentil 64 =>29.04
## Percentil 65 =>29.15
## Percentil 66 =>29.26
## Percentil 67 =>29.37
## Percentil 68 =>29.48
## Percentil 69 =>29.59
## Percentil 70 =>29.7
## Percentil 71 =>29.81
## Percentil 72 =>29.92
## Percentil 73 =>30.09
## Percentil 74 =>30.42
## Percentil 75 =>30.75
## Percentil 76 =>31.08
## Percentil 77 =>31.41
## Percentil 78 =>31.74
## Percentil 79 =>32.07
## Percentil 80 =>32.4
## Percentil 81 =>32.73
## Percentil 82 =>33.02
## Percentil 83 =>33.13
## Percentil 84 =>33.24
```

```

## Percentil 85 =>33.35
## Percentil 86 =>33.46
## Percentil 87 =>33.57
## Percentil 88 =>33.68
## Percentil 89 =>33.79
## Percentil 90 =>33.9
## Percentil 91 =>34.08
## Percentil 92 =>34.96
## Percentil 93 =>35.84
## Percentil 94 =>36.72
## Percentil 95 =>37.6
## Percentil 96 =>38.48
## Percentil 97 =>39.36
## Percentil 98 =>40.24
## Percentil 99 =>41.12

#Deciles
for (i in 1:10){
  cat(paste("Percentil ", i, " =>"))
  cat(quantile(radios,i/10))
  cat("\n")
}

## Percentil 1 =>15.1
## Percentil 2 =>16.8
## Percentil 3 =>20
## Percentil 4 =>20.8
## Percentil 5 =>24.5
## Percentil 6 =>28.2
## Percentil 7 =>29.7
## Percentil 8 =>32.4
## Percentil 9 =>33.9
## Percentil 10 =>42

#Calcula la moda
library(modeest)

## Warning: package 'modeest' was built under R version 3.4.3

##
## This is package 'modeest' written by P. PONCET.
## For a complete list of functions, use 'library(help = "modeest")' or
'help.start()'.

mfv(radios)

## [1] 20

```

## Coches

Fichero con datos de automoviles en spss, con su consumo en mpg (millas por galón), cilindrada, aceleración, año de fabricación modelo... Obteniendo los valores de las mismas magnitudes que hemos visto en teoria.

```
library(foreign)
#Cargamos datos de un fichero de spss
data2<- read.spss("cardata.sav",use.value.labels=TRUE,
max.value.labels=TRUE, to.data.frame=TRUE)

## Warning in read.spss("cardata.sav", use.value.labels = TRUE,
## max.value.labels = TRUE, : cardata.sav: Unrecognized record type 7,
subtype
## 18 encountered in system file

#Tomamos solo la magnitud de consumo en mpg
consumo <- data2[,1]

#Eliminamos los datos NA para el estudio estadístico
consumoTratado =na.omit(consumo)

#Media
mean(consumoTratado)

## [1] 28.79351

#Mediana
median(consumoTratado)

## [1] 28.9

#Desviación típica
sd(consumoTratado)

## [1] 7.37721

#Rango Inter cuartil
IQR(consumoTratado)

## [1] 11.725

#Cuartiles

#Primer Cuartil
quantile(consumoTratado,.25)

## 25%
## 22.55

#Segundo Cuartil
quantile(consumoTratado,.50)
```

```

## 50%
## 28.9

#Tercer Cuartil
quantile(consumoTratado,.75)

## 75%
## 34.275

#Percentiles
for (i in 1:99){
  cat("Percentil ", i ," => ")
  cat(quantile(consumoTratado,i/100),"\n")
}

## Percentil 1 => 16.359
## Percentil 2 => 16.906
## Percentil 3 => 17
## Percentil 4 => 17.512
## Percentil 5 => 17.6
## Percentil 6 => 17.772
## Percentil 7 => 18.1
## Percentil 8 => 18.272
## Percentil 9 => 18.577
## Percentil 10 => 19.13
## Percentil 11 => 19.2
## Percentil 12 => 19.272
## Percentil 13 => 19.4
## Percentil 14 => 19.842
## Percentil 15 => 20.185
## Percentil 16 => 20.2
## Percentil 17 => 20.201
## Percentil 18 => 20.408
## Percentil 19 => 20.507
## Percentil 20 => 20.6
## Percentil 21 => 20.839
## Percentil 22 => 21.364
## Percentil 23 => 21.676
## Percentil 24 => 22.216
## Percentil 25 => 22.55
## Percentil 26 => 23
## Percentil 27 => 23.293
## Percentil 28 => 23.584
## Percentil 29 => 23.737
## Percentil 30 => 23.89
## Percentil 31 => 23.943
## Percentil 32 => 24.192
## Percentil 33 => 24.643
## Percentil 34 => 25.106
## Percentil 35 => 25.4
## Percentil 36 => 25.816

```

```
## Percentil 37 => 26.244
## Percentil 38 => 26.6
## Percentil 39 => 26.734
## Percentil 40 => 27
## Percentil 41 => 27
## Percentil 42 => 27.052
## Percentil 43 => 27.2
## Percentil 44 => 27.264
## Percentil 45 => 27.485
## Percentil 46 => 27.938
## Percentil 47 => 28
## Percentil 48 => 28.044
## Percentil 49 => 28.391
## Percentil 50 => 28.9
## Percentil 51 => 29.509
## Percentil 52 => 29.8
## Percentil 53 => 29.909
## Percentil 54 => 30
## Percentil 55 => 30.445
## Percentil 56 => 30.836
## Percentil 57 => 31
## Percentil 58 => 31
## Percentil 59 => 31.354
## Percentil 60 => 31.58
## Percentil 61 => 31.833
## Percentil 62 => 31.986
## Percentil 63 => 32
## Percentil 64 => 32.092
## Percentil 65 => 32.245
## Percentil 66 => 32.398
## Percentil 67 => 32.553
## Percentil 68 => 32.804
## Percentil 69 => 32.957
## Percentil 70 => 33.52
## Percentil 71 => 33.763
## Percentil 72 => 34
## Percentil 73 => 34.069
## Percentil 74 => 34.122
## Percentil 75 => 34.275
## Percentil 76 => 34.428
## Percentil 77 => 34.5
## Percentil 78 => 34.802
## Percentil 79 => 35.087
## Percentil 80 => 35.82
## Percentil 81 => 36
## Percentil 82 => 36
## Percentil 83 => 36
## Percentil 84 => 36.1
## Percentil 85 => 36.43
## Percentil 86 => 37
```

```
## Percentil 87 => 37.022
## Percentil 88 => 37.264
## Percentil 89 => 37.751
## Percentil 90 => 38
## Percentil 91 => 38
## Percentil 92 => 38.076
## Percentil 93 => 39.029
## Percentil 94 => 39.346
## Percentil 95 => 40.835
## Percentil 96 => 41.428
## Percentil 97 => 43.223
## Percentil 98 => 43.964
## Percentil 99 => 44.441
```

*#Deciles*

```
for (i in 1:10){
  cat("Decil ", i , " => ")
  cat(quantile(consumoTratado,i/10), "\n")
}
```

```
## Decil 1 => 19.13
## Decil 2 => 20.6
## Decil 3 => 23.89
## Decil 4 => 27
## Decil 5 => 28.9
## Decil 6 => 31.58
## Decil 7 => 33.52
## Decil 8 => 35.82
## Decil 9 => 38
## Decil 10 => 46.6
```

*#Calcula la moda*

```
library(modeest)
mfv(consumoTratado)
```

```
## [1] 36
```