Tarea - Estructura de datos

Curso Estadística Descriptiva

2022-10-14

Tarea - Estructura de datos

Pregunta 1

```
harry = -10:27

harry[7]
```

```
## [1] -4
```

Pregunta 2

```
n = 0:200
max(100*2^n-7*3^n)
```

```
## [1] 1499
```

Pregunta 3

```
n = 0:40
x = 3*5^n-1

x[x>3.5]
```

```
##  [1] 1.400000e+01 7.400000e+01 3.740000e+02 1.874000e+03 9.374000e+03
##  [6] 4.687400e+04 2.343740e+05 1.171874e+06 5.859374e+06 2.929687e+07
## [11] 1.464844e+08 7.324219e+08 3.662109e+09 1.831055e+10 9.155273e+10
## [16] 4.577637e+11 2.288818e+12 1.144409e+13 5.722046e+13 2.861023e+14
## [21] 1.430511e+15 7.152557e+15 3.576279e+16 1.788139e+17 8.940697e+17
## [26] 4.470348e+18 2.235174e+19 1.117587e+20 5.587935e+20 2.793968e+21
## [31] 1.396984e+22 6.984919e+22 3.492460e+23 1.746230e+24 8.731149e+24
## [36] 4.365575e+25 2.182787e+26 1.091394e+27 5.456968e+27 2.728484e+28
```

Pregunta 4

```
comp = function(num){
  c(round(Re(num),2),round(Im(num),2),round(Mod(num),2),round(Arg(num),2) ,round(Conj(num),2))}
```

Pregunta 5

```
ec = function(A,B,C){
  c((-B + sqrt(B^2 - 4*A*C)/(2*A)),(-B - sqrt(B^2 - 4*A*C)/(2*A)))
}
```

Pregunta 6

```
 vec = c(0,9,98,2,6,7,5,19,88,20,16,0)

vec[c(2,8,10,11)]
vec[vec == 9 | vec ==19 | vec == 20 | vec == 16]
vec[which(vec == 9 | vec ==19 | vec == 20 | vec == 16)]
```

```
## [1]  9 19 20 16
## [1]  9 19 20 16
## [1]  9 19 20 16
```

```
vec[vec%%2==0]
```

```
## [1]  0 98  2  6 88 20 16  0
```

```
vec[vec%%2==1 && vec>20]
```

```
## numeric(0)
```

```
which.max(vec)
```

```
## [1] 3
```

```
which(vec == min(vec))
```

```
## [1]  1 12
```

Pregunta 7

```
A = matrix(c(1,3,2,4),nrow = 2,byrow = TRUE)
A
```

```
##      [,1] [,2]
## [1,]    1    3
## [2,]    2    4
```

```
B = A%*%(A+A)*A
B[2,2]
```

```
## [1] 176
```

Pregunta 8

```
C  = rbind(c(2,4,-6),c(0,0,3),c(0,-2,5))

eigen(C)$values
```

```
## [1] 3 2 2
```

Pregunta 9

```
C = rbind(c(-48,35,-12),c(-134,95,-32),c(-194,133,-44))
print(eigen(C)$vectors,3)
```

```
##       [,1]  [,2]    [,3]
## [1,] 0.371 0.169  0.0976
## [2,] 0.743 0.507 -0.1952
## [3,] 0.557 0.845 -0.9759
```

Pregunta 10

```
D = rbind(c(-2,-8,-2,3),c(-3,-6,-1,2),c(-9,-22,-3,7), c(-18,-44,-8,15))
qr(D)$rank
```

```
## [1] 3
```