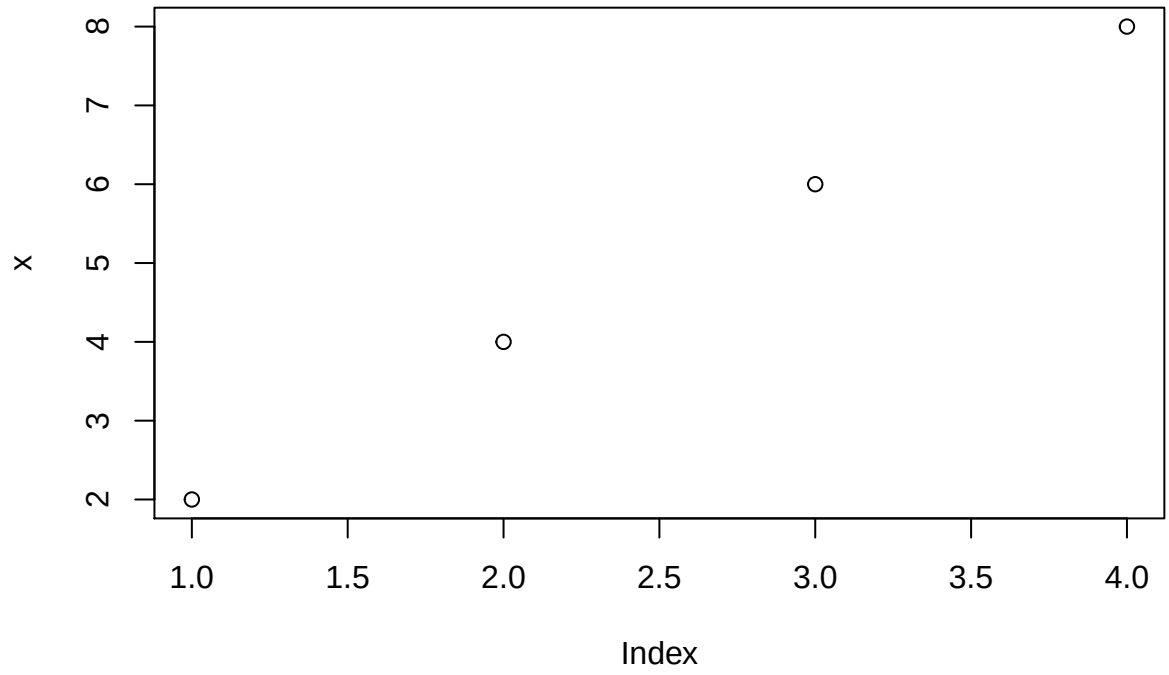
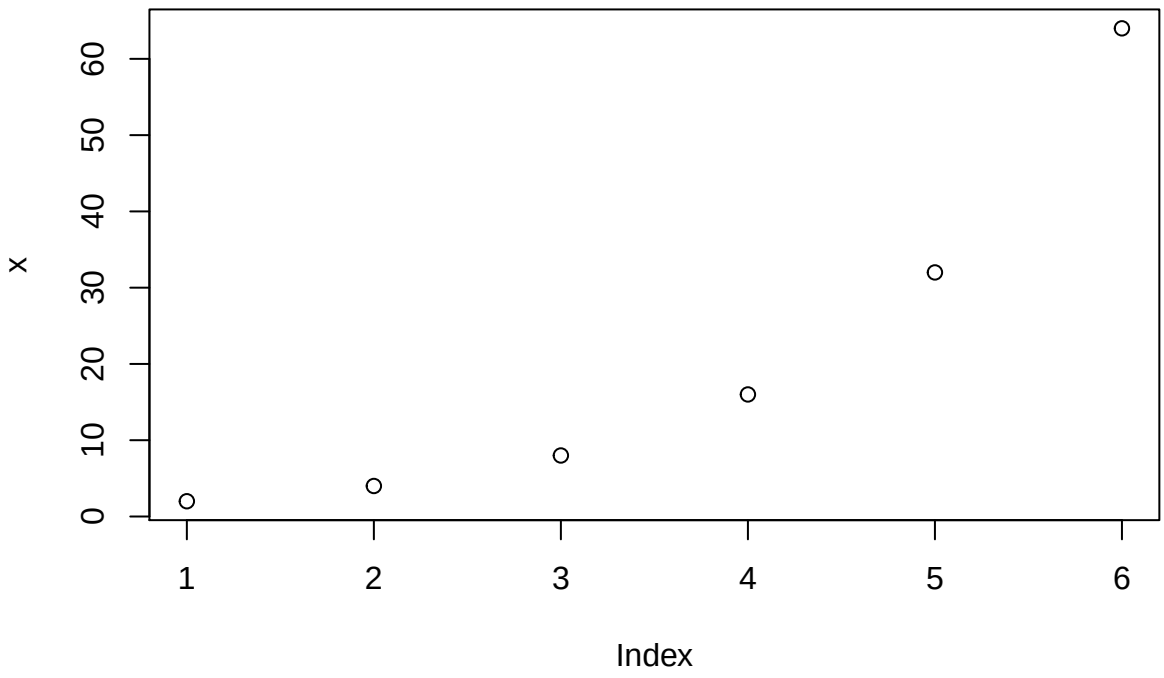
Gráficos

Gráficos con la función `plot`

```
x = c(2,4,6,8)

plot(x)
```

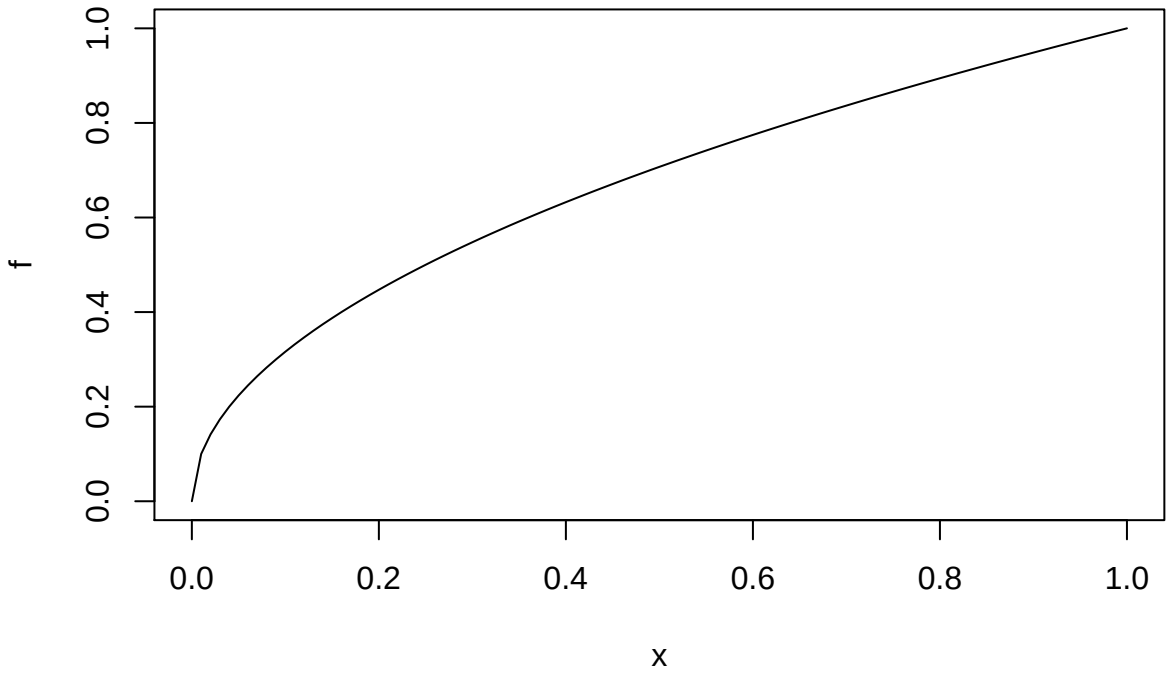



```
x <- 2^(1:6)

#plot(1:length(x), x)
plot(x)
```

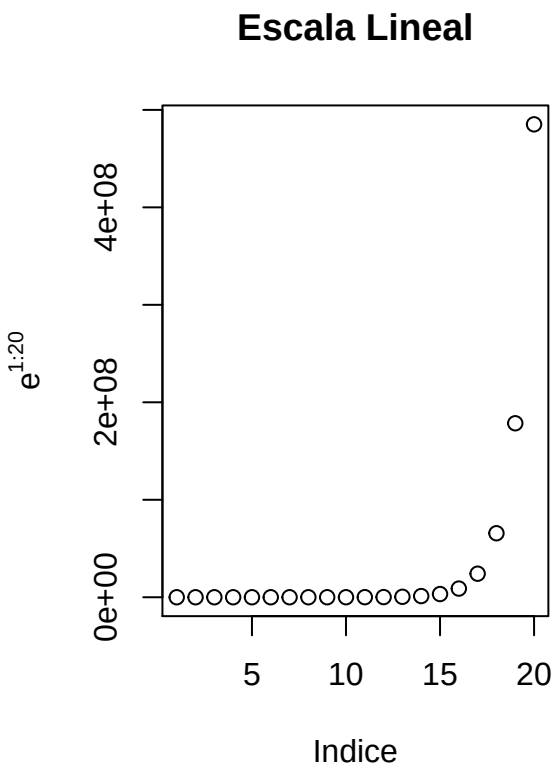


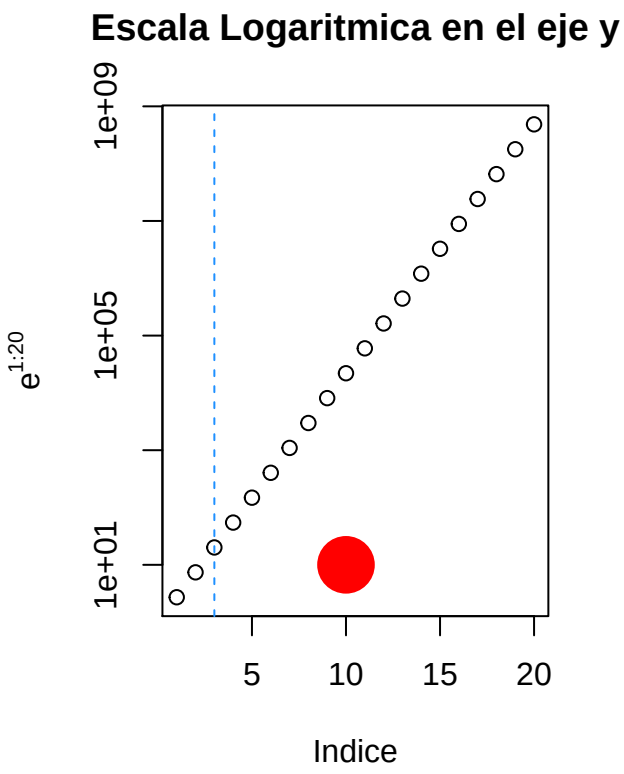
Para representar una función $f(x)$

```
f <- function(x){ sqrt(x) }

plot(f)
```




```
par(mfrow = c(1,2))
plot = plot(exp(1:20), xlab = 'Indice', ylab = expression(e^{1:20}), main = 'Escala Lineal')
plotLog = plot(exp(1:20), log = 'y', xlab = 'Indice', ylab = expression(e^{1:20}), main = 'Escala Logar
points(10,10, col = "red", cex = 4, pch = 16)
abline(v = 3, lty = 2, col = "dodgerblue")
```






```
plot(n, fib, pch = 21, col = 'red', bg = 'yellow', cex = 1.2, type = "o", main = "Fibonacci", sub = "Su
     lty = "dashed", lwd = 2, xlim = c(1, 10), ylim = c(0, 100), xaxp = c(1,10,3), yaxp = c(0,100,10))
```

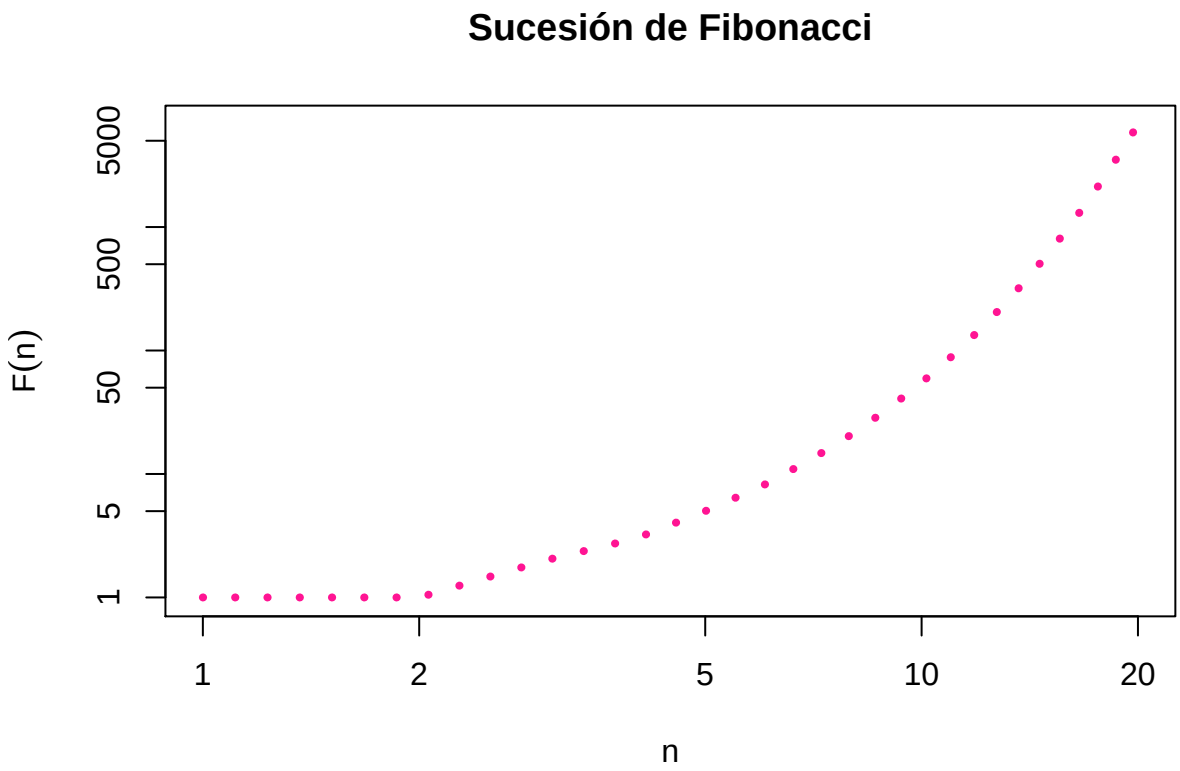
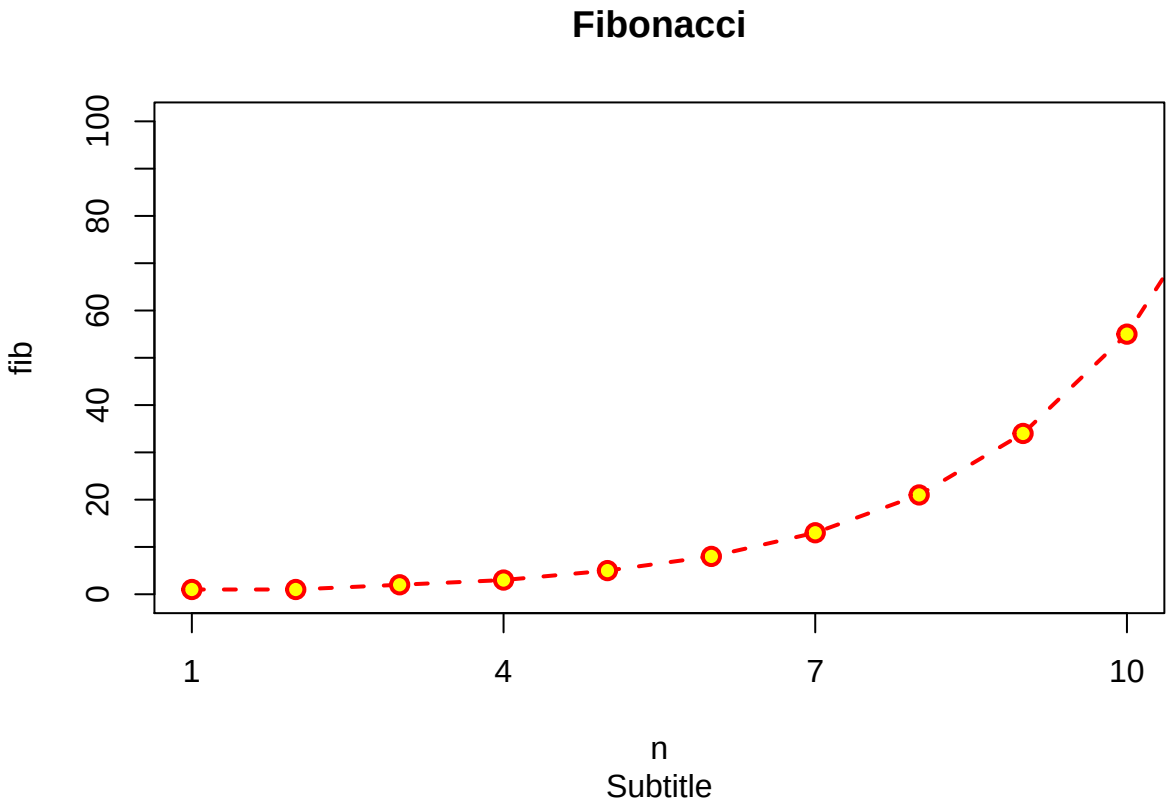
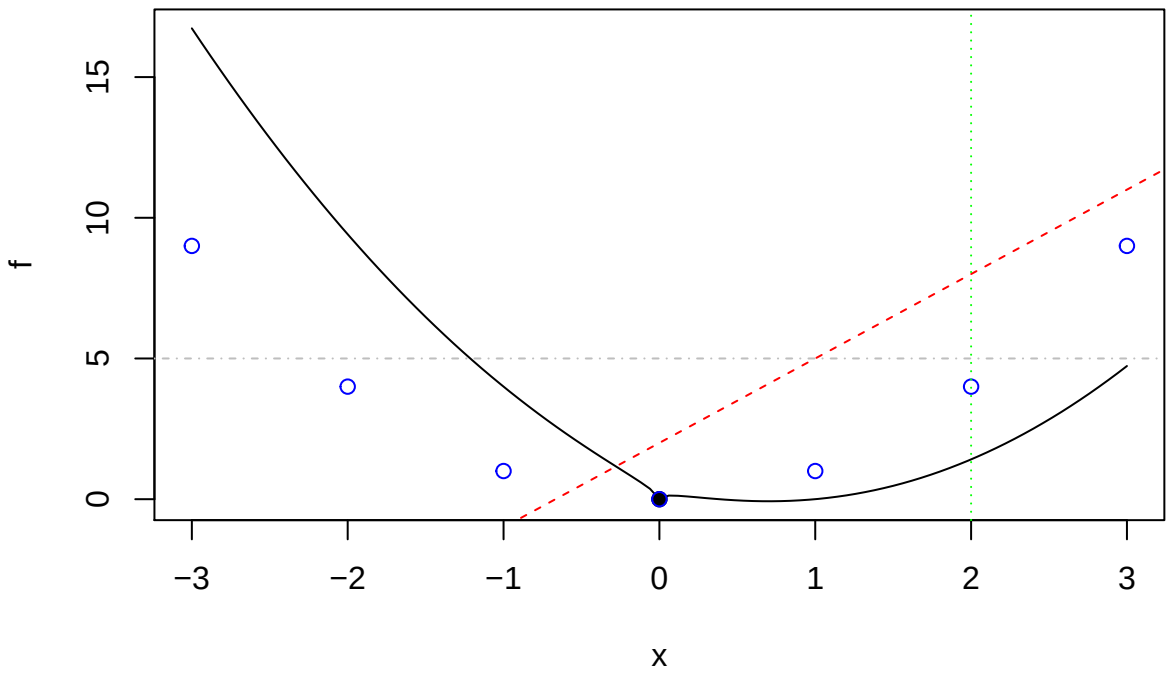


Figure 1: Fibonacci

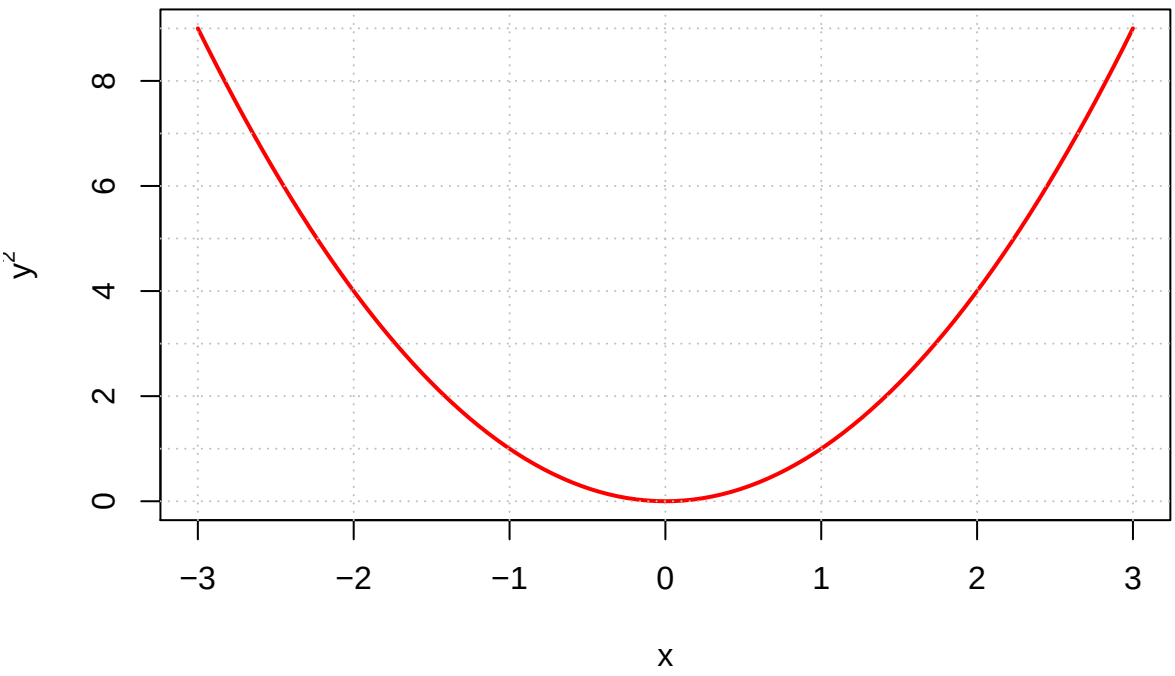


Cómo añadir elementos a un gráfico

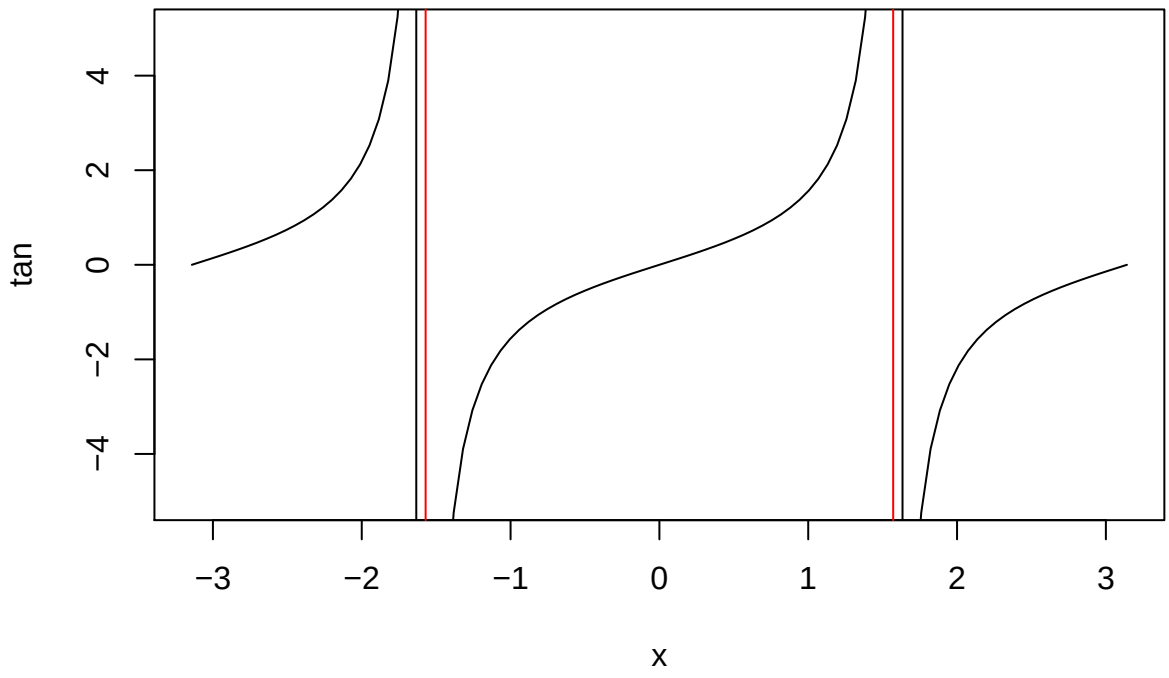
```
f <- function(x){
  x^2 - 2*x + sqrt(abs(x))
}
plot(f, xlim = c(-3,3))
points(0,0, pch = 19)
points(-3:3, (-3:3)^2, col = "blue")
abline(2,3, lty = "dashed", col = "red")
abline(v = 2, lty = "dotted", col = "green")
abline(h = 5, lty = "dotdash", col = "gray")
```



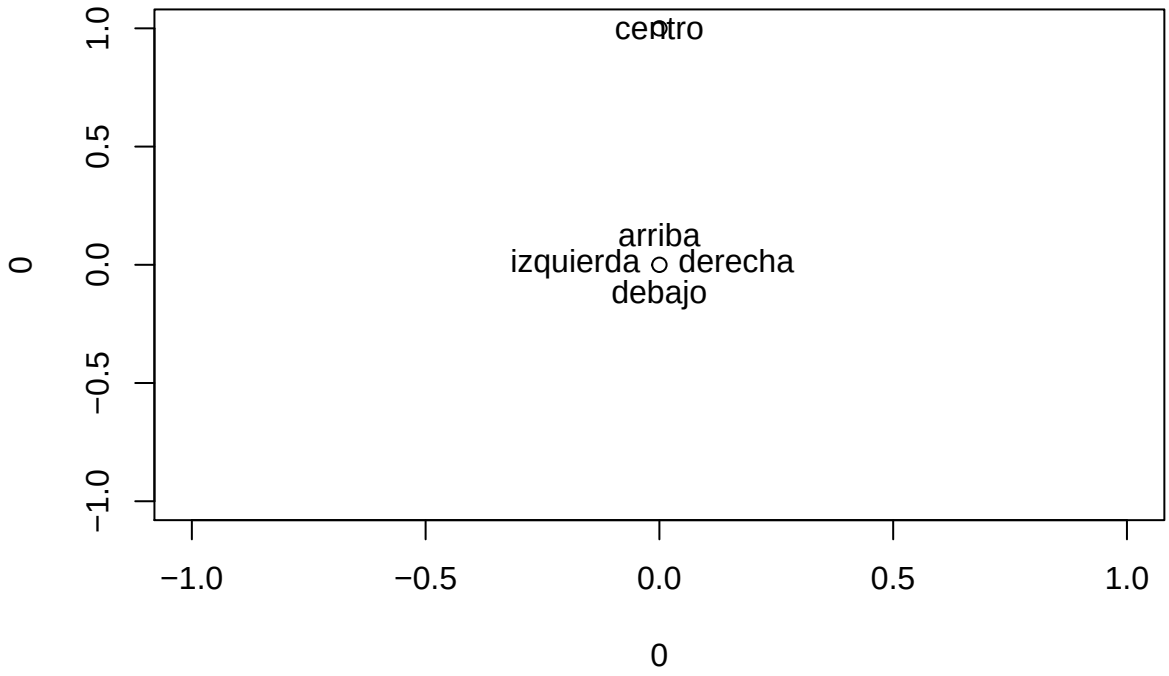

```
f <- function(x){x^2}
plot(f, xlim = c(-3,3), col = "red", lwd = 2, ylab = expression(y^2), xlab = "x")
abline(h = 0:9, v = -3:3, lty = "dotted", col = "grey")
```



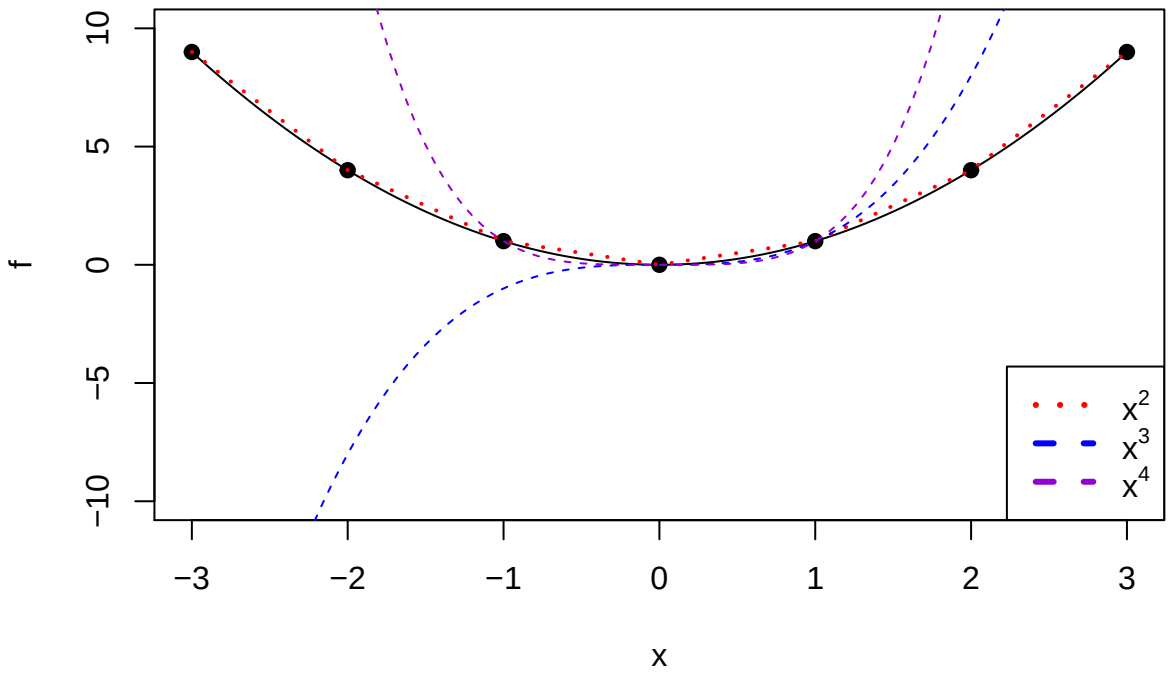

```
plot(tan, xlim = c(-pi, pi), ylim = c(-5,5))
abline(v = c(-pi/2, pi/2), col = "red")
```



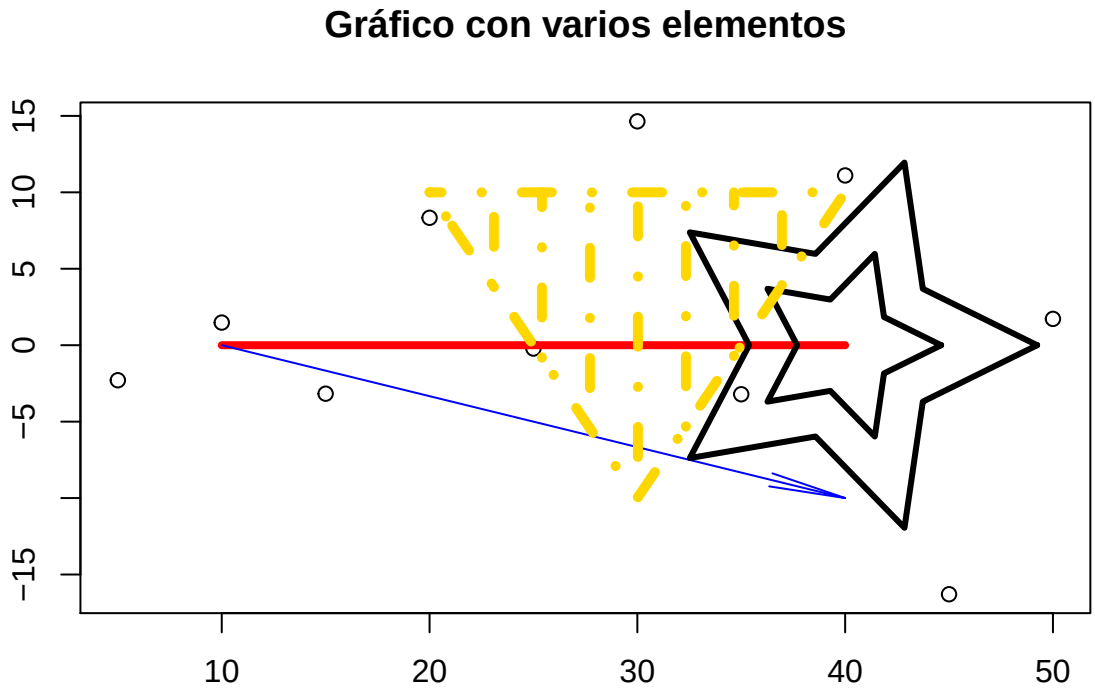

```
plot(0,0)
text(0,0 ,labels = "debajo", pos = 1)
text(0,0 ,labels = "izquierda", pos = 2)
text(0,0 ,labels = "arriba", pos = 3)
text(0,0 ,labels = "derecha", pos = 4)
points(0,1)
text(0,1 ,labels = "centro")
```




```r
f <- function(x){x^2}
plot(f, xlim = c(-3,3), ylim = c(-10,10))
points(-3:3, f(-3:3), pch = 19)
lines(-3:3, f(-3:3), lwd = 2, lty = "dotted", col = "red")
curve(x^3, lty = "dashed", col = "blue", add = TRUE)
curve(x^4, lty = "dashed", col = "darkviolet", add = TRUE)
legend("bottomright",
       col = c("red","blue","darkviolet"),
       legend=c(expression(x^2),expression(x^3),expression(x^4)),
       lwd=3,
       bty="o",
       lty=c("dotted","dashed","dashed")
       )
```




```
x = c(5*(1:10))
plot(x,c(exp(-x)+(-1)^x*x/2*sin(x)^2), xlab="", ylab="", main="Gráfico con varios elementos")
segments(10,0,40,0, col="red", lwd=4)
arrows(10,0,40,-10, col="blue", length=0.4, angle=5, code=2)
symbols(40,0, stars=cbind(1,.5,1,.5,1,.5,1,.5,1,.5), add=TRUE, lwd=3, inches=0.5)
symbols(40,0, stars=cbind(1,.5,1,.5,1,.5,1,.5,1,.5), add=TRUE, lwd=3)
polygon(c(20,30,40), c(10,-10,10), col="gold", density=4, angle=90, lty=4, lwd=5)
```




```
alumnos = c(1:10)
notas = c(2,5,7,9,8,3,5,6,10,7)
plot(alumnos, notas, main = "Gráfico con texto")
text(alumnos, notas, labels = c("S","A","N","E","N","S","A","A","E","N"), pos= c(rep(3, times=8),1,3))
```

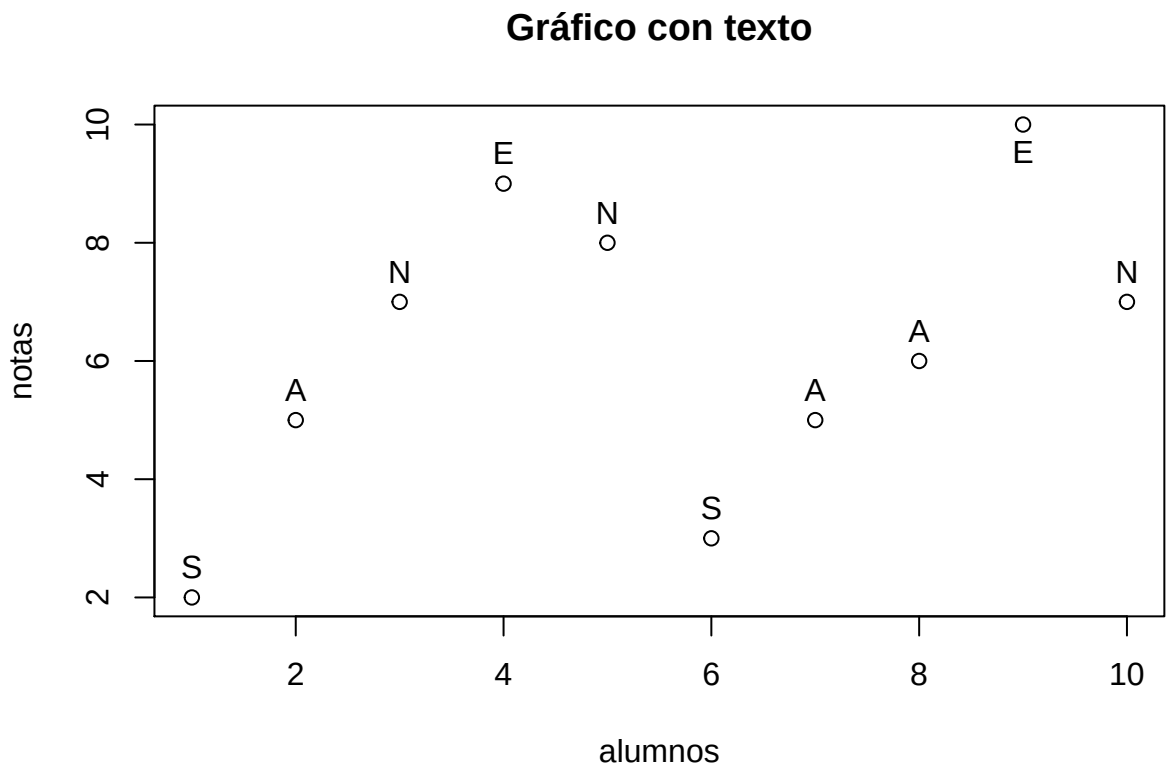


Figure 2: Gráfico de Alumnos y Notas