M1. Tarea Blanquita

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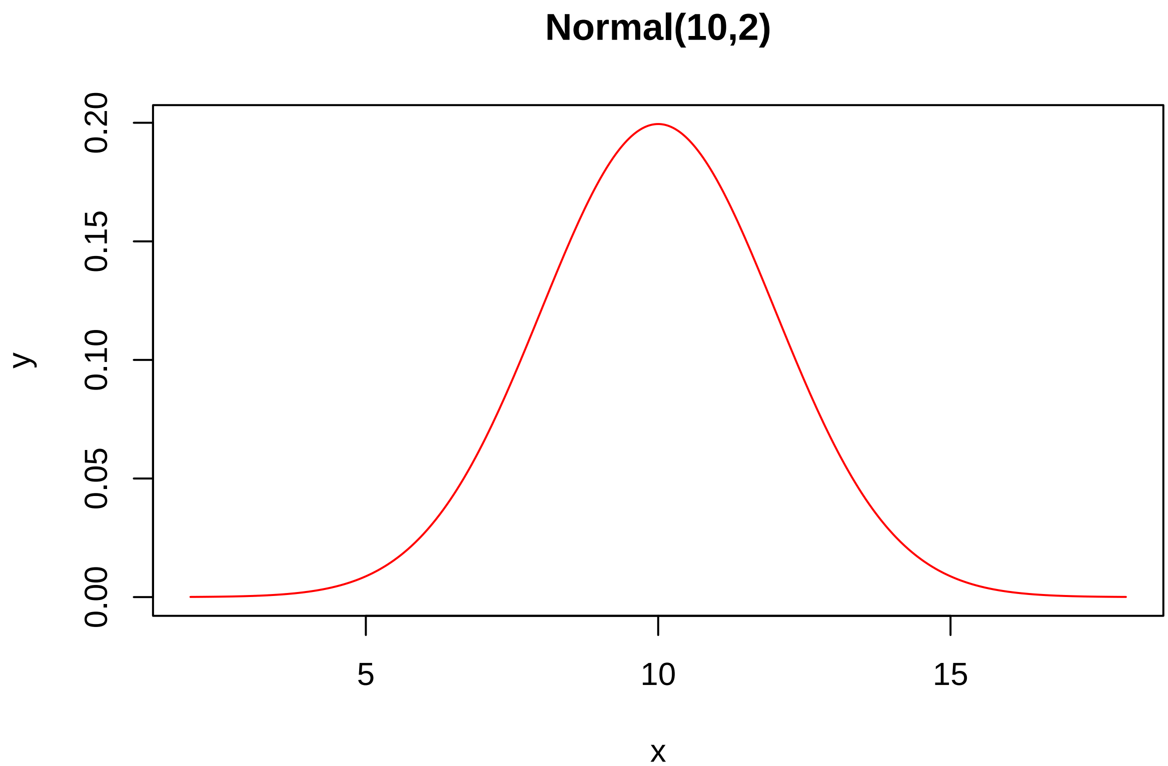
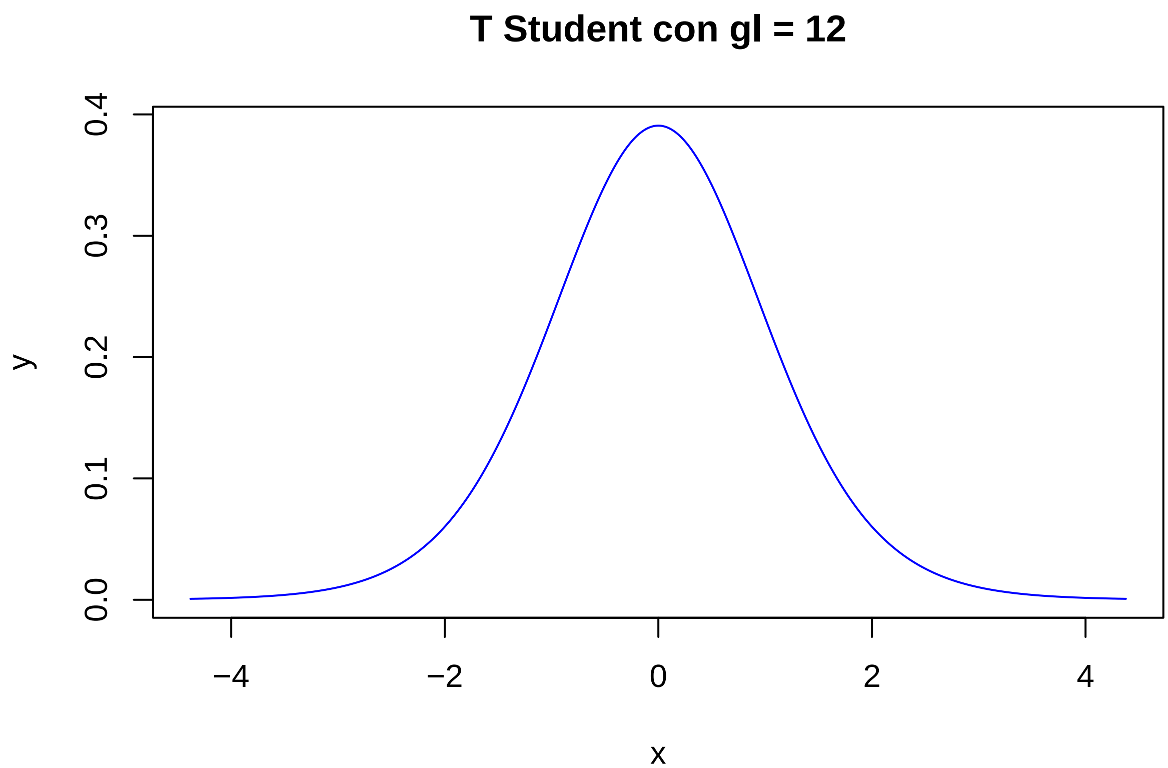
1.

```
miu = 10
sigma = 2
x = seq(miu - 4*sigma, miu + 4*sigma, 0.01)
y = dnorm(x,miu, sigma)
plot(x,y, type = "l", col = "red", main = "Normal(10,2)")
```



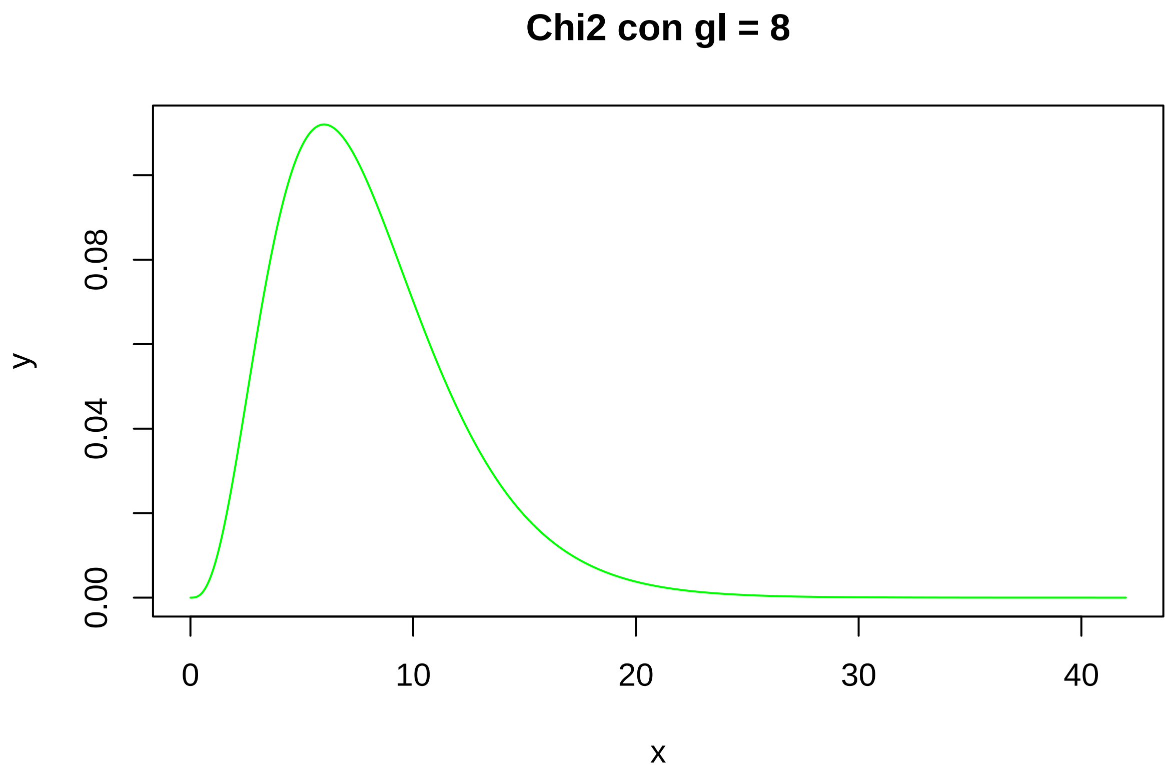
2.

```r
gl = 12  # Grados de libertad
sigma = sqrt(gl/(gl-2))
x = seq( -4*sigma, 4*sigma, 0.01)
y = dt(x,gl)
plot(x,y, type = "l", col = "blue", main = "T Student con gl = 12")
```



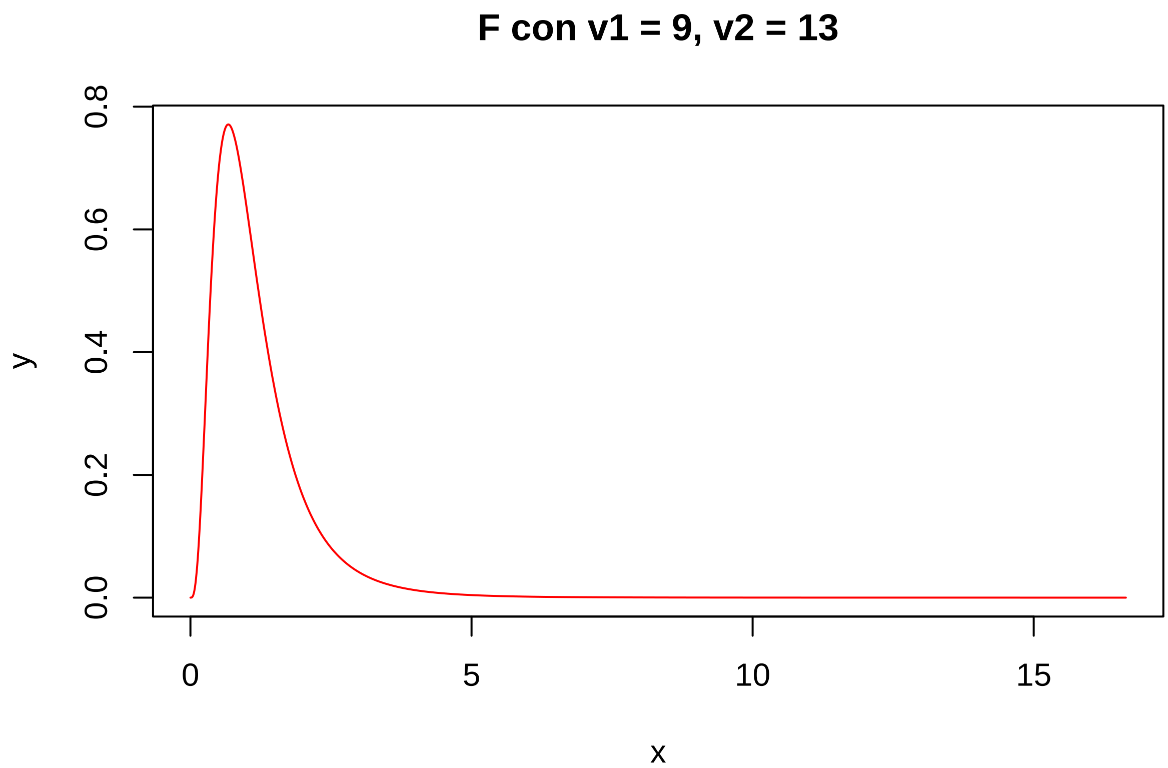
3.

```r
gl = 8
sigma = sqrt(2*gl)
x = seq( 0, miu + 8*sigma, 0.01)
y = dchisq(x,gl)
plot(x,y, type = "l", col = "green", main = "Chi2 con gl = 8")
```



4.

```
v1 = 9
v2 = 13
sigma = sqrt(2)*v2*sqrt(v2+v1-2)/(sqrt(v2-4)*(v2-2)*sqrt(v1))
x = seq( 0, miu + 8*sigma, 0.01)
y = df(x,v1, v2)
plot(x,y, type = "l", col = "red", main = "F con v1 = 9, v2 = 13")
```



5.

```r
# a) P(Z >0.7) = 0.2419637
pnorm(0.7, mean=0, sd=1, lower.tail=FALSE)
```

```
## [1] 0.2419637
```

```r
# b) P(Z < 0.7) = 0.7580363
pnorm(0.7, mean=0, sd=1, lower.tail=TRUE)
```

```
## [1] 0.7580363
```

```r
# c) P(Z = 0.7)  = 0; Calculamos la probabilidad cumulativa en un solo punto
pnorm(0.7, mean=0, sd=1) - pnorm(0.7, mean=0, sd=1)
```

```
## [1] 0
```

6.

```r
# Valor de Z que tiene 45% de las demás valores inferiores a ese valor
qnorm(.45,0,1)
```

```
## [1] -0.1256613
```

7.

```r
#a) P(X < 87) = 0.031645
pnorm(87, 100,7)
```

```
## [1] 0.03164542
```

```r
#b) P(X > 87) = 0.968354
pnorm(87, 100,7,lower.tail = FALSE)
```

```
## [1] 0.9683546
```

```r
#c) P(87 < X < 110) = 0.89179
pnorm(110,100,7) - pnorm(87,100,7)
```

```
## [1] 0.8917909
```

8.

```r
#P(X <0.5) = 0.6860532
pt(0.5, 10)
```

```
## [1] 0.6860532
```

```r
#P(X > 1.5)  = 0.082253
pt(1.5, 10, lower.tail=FALSE)
```

```
## [1] 0.08225366
```

```r
#La t que sólo el 5% son inferiores a ella.  (t = -1.812461)
qt(.05,10)
```

```
## [1] -1.812461
```

9.

```r
# P(X2 < 3) = 0.1911532
pchisq(3,6)
```

```
## [1] 0.1911532
```

```r
# P(X2 > 2) = 0.9196986
pchisq(2,6,lower.tail=FALSE)
```

```
## [1] 0.9196986
```

```r
# El valor x de chi que sólo el 5% de los demás valores de x es mayor a ese valor ( Resp. 12.59159)
qchisq(0.05,6,lower.tail = FALSE)
```

```
## [1] 12.59159
```

10.

```r
# P(X2 < 3) = 0.1911532
pf(2,df1=8,df2=10)
```

```
## [1] 0.8492264
```

```r
# P(X2 > 2) = 0.9196986
pf(3,df1=8,df2=10,lower.tail=FALSE)
```

```
## [1] 0.05351256
```

```r
# El valor x de chi que sólo el 5% de los demás valores de x es mayor a ese valor ( Resp. 12.59159)
qf(.25,df1=8,df2=10)
```

```
## [1] 0.6131229
```

11.

```r
miu = pnorm(60,65,20)
print(miu*100)
```

```
## [1] 40.12937
```