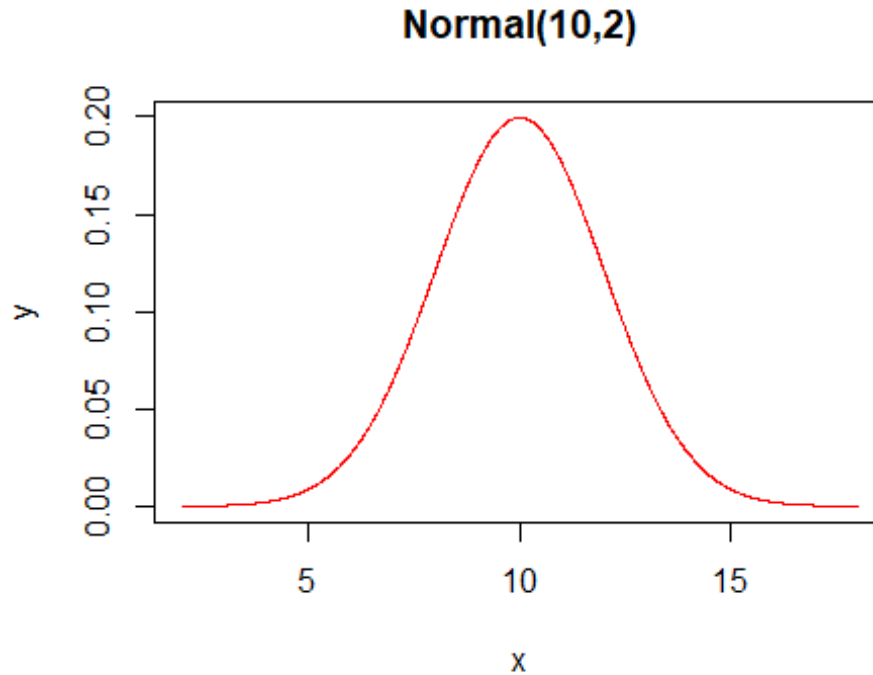# Algunas distribuciones de probabilidad

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##Problema 1
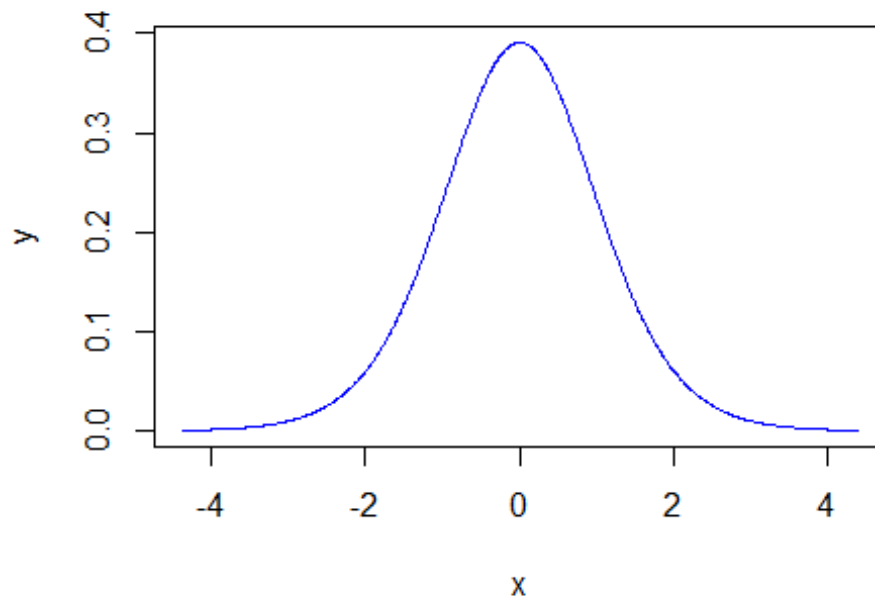
```r
miu = 10
sigma = 2
x = seq(miu - 4*sigma, miu + 4*sigma, 0.01)
y = dnorm(x,miu, sigma)
plot(x,y, type = "l", col = "red", main = "Normal(10,2)")
```


Normal(10,2)

##Problema 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")
```
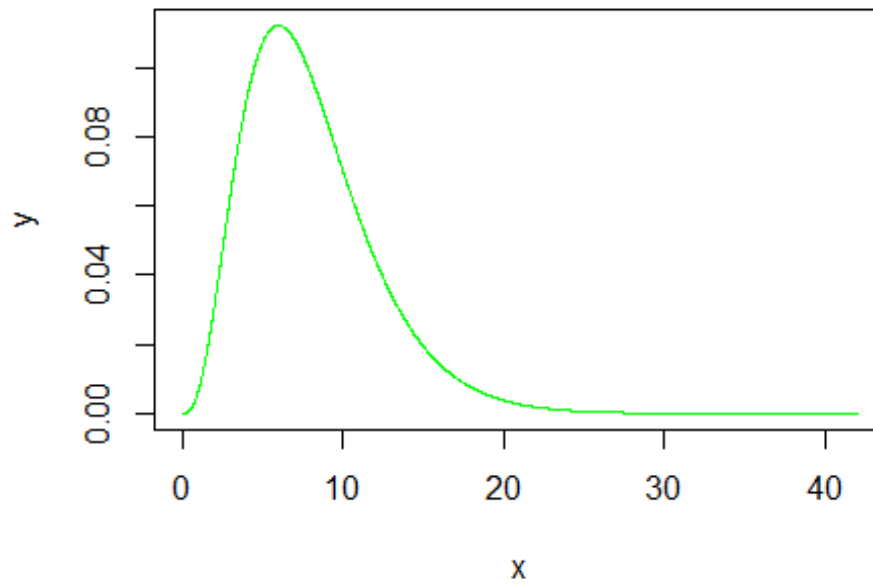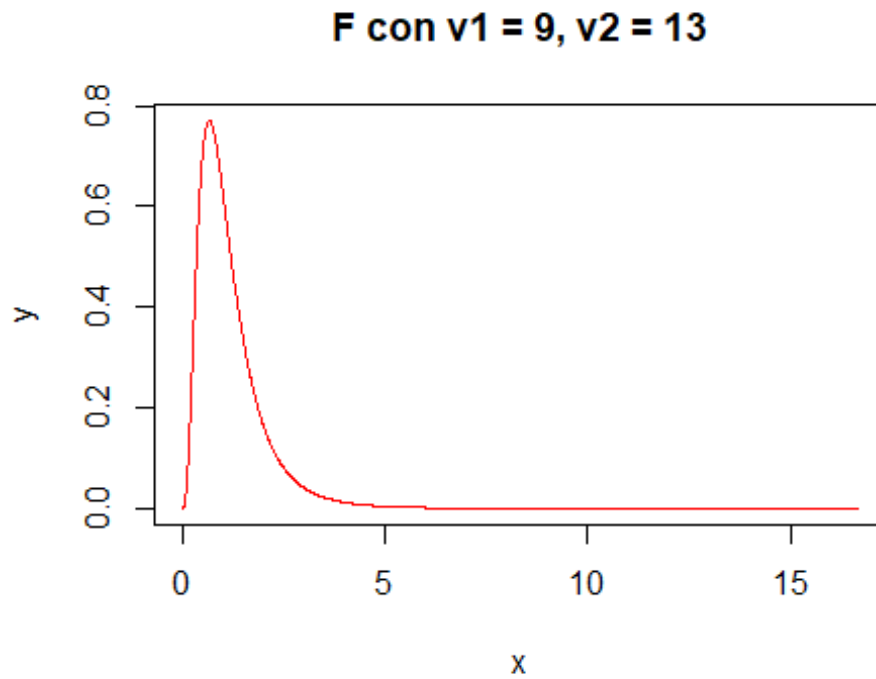
T Student con gl = 12

Problema 3

```
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")
```

Chi2 con gl = 8

```
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")
```

F con v1 = 9, v2 = 13

(plot: red F-distribution density curve, x-axis from 0 to 15, y-axis from 0.0 to 0.8)

##Problema 5

```
a=1-pnorm(0.7)
a

## [1] 0.2419637

b=pnorm(0.7)
b

## [1] 0.7580363

c=pnorm(0.7000000000001)-pnorm(0.6999999999999)
c

## [1] 6.250556e-14
```

##Problema 6

```
qnorm(0.45)

## [1] -0.1256613
```

##Porblema 7

```
miu=100
sigma=7
```

```
a=pnorm(87,miu,sigma)
a
```

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

```
b=1-pnorm(87,miu,sigma)
b
```

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

```
c=pnorm(110,miu,sigma)-pnorm(87,miu,sigma)
c
```

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

##Porblema 8

```
gl=10
a=pt(0.5,gl)
a
```

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

```
b=1-pt(1.5,gl)
b
```

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

```
c=qt(0.05,gl)
c
```

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

##Problema 9

```
gl=6
```

```
a=pchisq(3, gl)
a
```

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

```
b=1-pchisq(2, gl)
b
```

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

```
c=qchisq(0.95, gl)
c
```

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

##Problema 10

```
v1=8
v2=10

a=pf(2, v1, v2)
a
```

[1] 0.8492264

```
b=1-pf(3, v1, v2)
b
```

[1] 0.05351256

```
c=qf(0.25, v1,v2)
c
```

[1] 0.6131229

##Problema 10

```
miu=65
sigma=20
R=100*pnorm(60,miu,sigma)

print(paste('el resultado es', round(R,2),'%'))
```

[1] "el resultado es 40.13 %"