Stat 5309 Lab 0

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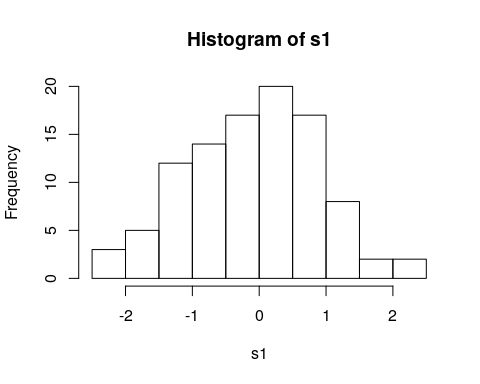
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# Exercise 1.

## Distributions

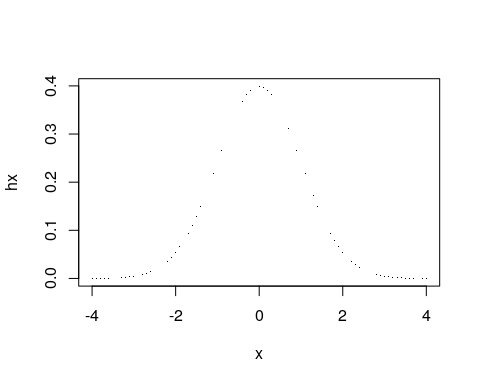
### Histogram of normally distributed sample data

s1 <- rnorm(100,0,1)  
hist(s1)



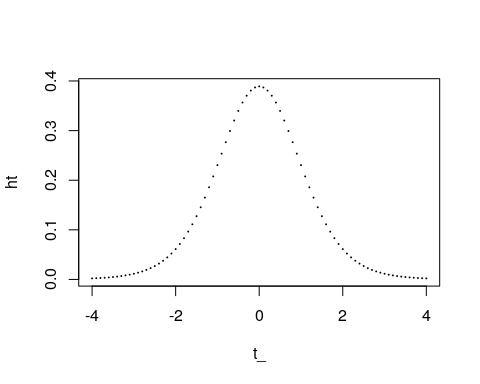
### density curve of normal distribution

x <- seq(-4,4,0.1)  
hx <- dnorm(x,0,1)  
plot(x,hx,pch=16,cex=0.01)



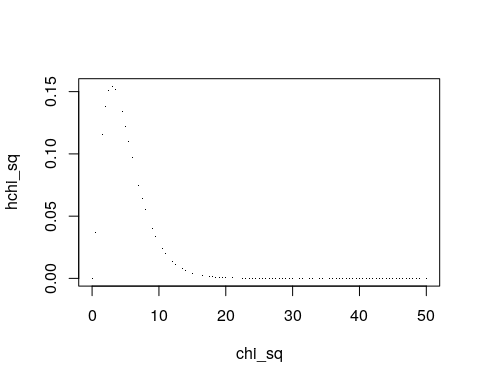
### density curve of some t-distribution

t\_ <- x  
ht <- dt(t\_,10)  
plot(t\_,ht,cex=0.01)



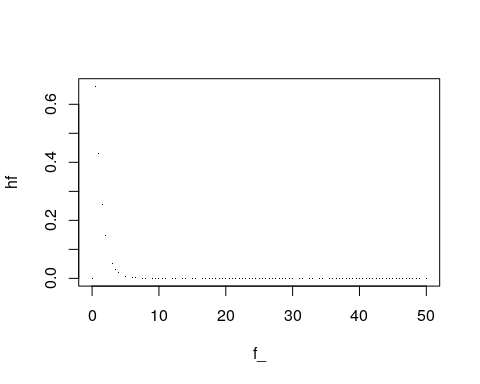
### density curve of some chi-squared distributions

chi\_sq <- seq(0,50,0.5)  
hchi\_sq <- dchisq(chi\_sq,5)  
plot(chi\_sq,hchi\_sq,pch=16,cex=0.01)



### density curve of some F-distributions

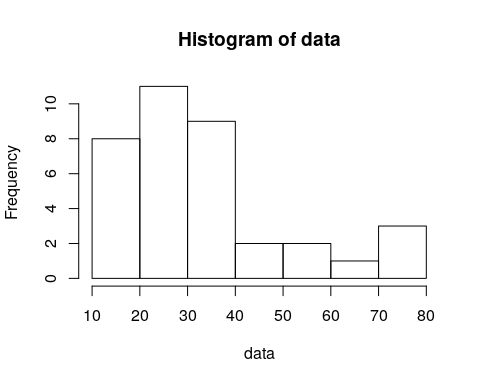
f\_ <- seq(0,50,0.5)  
hf <- df(f\_,3,20)  
plot(f\_,hf,pch=16,cex=0.1)



# Exercise 2.

## Check normality of data

data <- c( 26.4  
,23.5  
,25.4  
,22.9  
,25.2  
,39.2  
,25.5  
,31.9  
,26.0  
,44.6  
,35.5  
,38.6  
,30.1  
,31.0  
,30.8  
,32.8  
,47.7  
,39.1  
,55.3  
,50.7  
,73.8  
,71.1  
,68.4  
,77.1  
,19.4  
,19.3  
,18.7  
,19.0  
,23.2  
,21.3  
,23.2  
,19.9  
,18.9  
,19.8  
,19.6  
,21.9  
)  
hist(data)



data\_s <- sort(data)  
rank\_data <- rank(data\_s)  
size\_data <- length(data\_s)  
p\_ <- (rank\_data-0.5)/size\_data  
z\_quantile <- qnorm(p\_)  
plot(z\_quantile,data\_s,pch=16)

