Ejercicio 1:

```
rm(list=ls())
```

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```
rm(list=ls())
1.
```

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```
rm(list=ls())
1.

est1 <- function(datos)
{
  sal <- 2*mean(datos)
  sal
}
```

Ejercicio 1:

```
rm(list=ls())
1.

est1 <- function(datos)
{
  sal <- 2*mean(datos)
  sal
}

est2 <- function(datos)
{ sal <- max(datos)
  sal
}
```

1.*a*)

1.*a*)

```
datA <- scan()

est1(datA)
est2(datA)
```

1.*a*)

```
datA <- scan()

est1(datA)
est2(datA)
```

[1] 2.714
[1] 2.56

1.*a*)

```
datA <- scan()
```

```
est1(datA)
est2(datA)
```

```
[1] 2.714
[1] 2.56
```

1.*b*)

```
datB <- scan()
```

```
est1(datB)
est2(datB)
```

1.*a*)

```
datA <- scan()

est1(datA)
est2(datA)

[1] 2.714
[1] 2.56
```

1.*b*)

```
datB <- scan()

est1(datB)
est2(datB)

[1] 2.2
[1] 2.98
```

2.

2.

```
set.seed(123)
dat5 <- runif(5,0,3)
View(dat5)
```

2.

```
set.seed(123)
dat5 <- runif(5,0,3)
View(dat5)
```

[1] 0.8627326 2.3649154 1.2269308 2.6490522 2.8214019

2.

```
set.seed(123)
dat5 <- runif(5,0,3)
View(dat5)
```

[1] 0.8627326 2.3649154 1.2269308 2.6490522 2.8214019

3.

2.

```
set.seed(123)
dat5 <- runif(5,0,3)
View(dat5)
```

[1] 0.8627326 2.3649154 1.2269308 2.6490522 2.8214019

3.
```
est1(dat5)
```

[1] 3.970013

4.

4.

```
titaH5 <- c()

set.seed(123)

for(i in 1:1000)
{
  dat5m <- runif(5,0,3)
  titaH5[i] <- est1(dat5m)
}
```
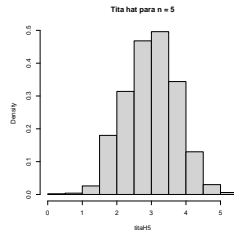
4.

```
titaH5 <- c()

set.seed(123)

for(i in 1:1000)
{
  dat5m <- runif(5,0,3)
  titaH5[i] <- est1(dat5m)
}

hist(titaH5,freq=F,main = "Tita hat para n = 5")
```

4.

```
titaH5 <- c()

set.seed(123)

for(i in 1:1000)
{
  dat5m <- runif(5,0,3)
  titaH5[i] <- est1(dat5m)
}

hist(titaH5,freq=F,main = "Tita hat para n = 5")
```


Tita hat para n = 5

4.

```
titaH5 <- c()

set.seed(123)

for(i in 1:1000)
{
  dat5m <- runif(5,0,3)
  titaH5[i] <- est1(dat5m)
}

hist(titaH5,freq=F,main = "Tita hat para n = 5")
```
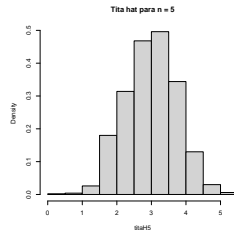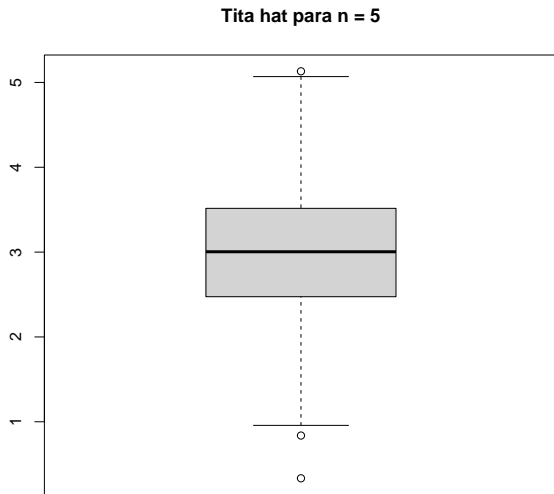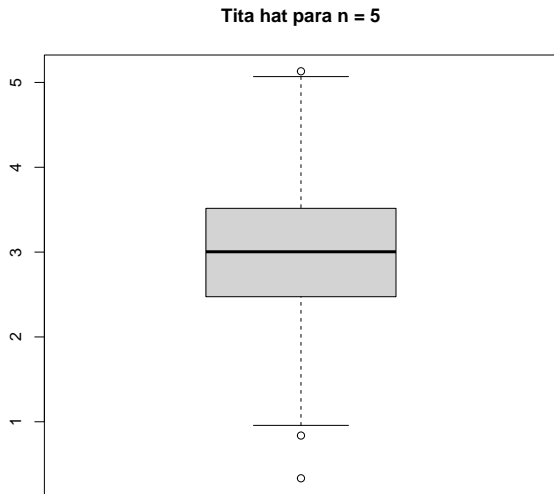
```
boxplot(titaH5,main = "Tita hat para n = 5")
```

```
boxplot(titaH5,main = "Tita hat para n = 5")
```


Tita hat para n = 5

```
boxplot(titaH5,main = "Tita hat para n = 5")
```


Tita hat para n = 5

5.

5.

```
#n=30
titaH30 <- c()
set.seed(123)

for(i in 1:1000)
{
  dat30m <- runif(30,0,3)
  titaH30[i] <- est1(dat30m)
}

#n = 50
titaH50 <- c()
set.seed(123)

for(i in 1:1000)
{
  dat50m <- runif(50,0,3)
  titaH50[i] <- est1(dat50m)
}

#n = 100
titaH100 <- c()
set.seed(123)

for(i in 1:1000)
{
  dat100m <- runif(100,0,3)
  titaH100[i] <- est1(dat100m)
}
```

```
par(mfrow=c(4,1))
hist(titaH5, freq=F, main = "Tita hat para n = 5", xlim=c(0.5,5.5))
hist(titaH30, freq=F, main = "Tita hat para n = 30", xlim=c(0.5,5.5))
hist(titaH50, freq=F, main = "Tita hat para n = 50", xlim=c(0.5,5.5))
hist(titaH100, freq=F, main = "Tita hat para n = 100", xlim=c(0.5,5.5))
```
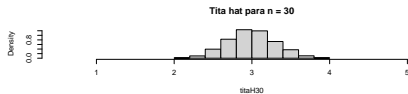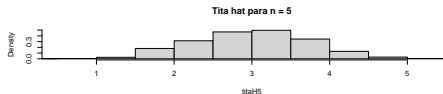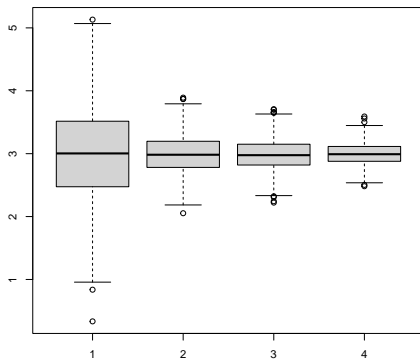
```
par(mfrow=c(4,1))
hist(titaH5, freq=F, main = "Tita hat para n = 5", xlim=c(0.5,5.5))
hist(titaH30, freq=F, main = "Tita hat para n = 30", xlim=c(0.5,5.5))
hist(titaH50, freq=F, main = "Tita hat para n = 50", xlim=c(0.5,5.5))
hist(titaH100, freq=F, main = "Tita hat para n = 100", xlim=c(0.5,5.5))
```
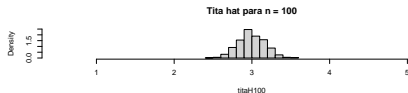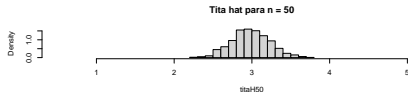
```
par(mfrow=c(1, 1))
boxplot(titaH5, titaH30, titaH50, titaH100)
```

```
par(mfrow=c(1, 1))
boxplot(titaH5, titaH30, titaH50, titaH100)
```

6.3.

6.3.

`est2(dat5)`

6.3.

```
est2(dat5)
```

```
[1] 2.821402
```

6.3.

```
est2(dat5)
```

[1] 2.821402

6.4.$y5$.

6.3.

```
est2(dat5)
```

[1] 2.821402

6.4.$y5$.

```
titaT5 <- c()
titaT30 <- c()
titaT50 <- c()
titaT100 <- c()
```

```
set.seed(123)
for(i in 1:1000)
{
  dat5m <- runif(5,0,3)
  titaT5[i] <- est2(dat5m)
}
set.seed(123)
for(i in 1:1000)
{
  dat30m <- runif(30,0,3)
  titaT30[i] <- est2(dat30m)
}
set.seed(123)
for(i in 1:1000)
{
  dat50m <- runif(50,0,3)
  titaT50[i] <- est2(dat50m)
}
set.seed(123)
for(i in 1:1000)
{
  dat100m <- runif(100,0,3)
  titaT100[i] <- est2(dat100m)
}
```

```
par(mfrow=c(4,1))
hist(titaT5, freq=F, main = "Tita tilde para n = 5",xlim=c(0.5,3))
hist(titaT30, freq=F, main = "Tita tilde para n = 30",xlim=c(0.5,3))
hist(titaT50, freq=F, main = "Tita tilde para n = 50",xlim=c(0.5,3))
hist(titaT100, freq=F, main = "Tita tilde para n = 100",xlim=c(0.5,3))
```

```
par(mfrow=c(4,1))
hist(titaT5, freq=F, main = "Tita tilde para n = 5",xlim=c(0.5,3))
hist(titaT30, freq=F, main = "Tita tilde para n = 30",xlim=c(0.5,3))
hist(titaT50, freq=F, main = "Tita tilde para n = 50",xlim=c(0.5,3))
hist(titaT100, freq=F, main = "Tita tilde para n = 100",xlim=c(0.5,3))
```
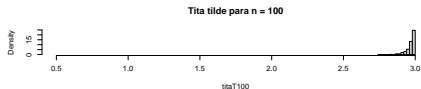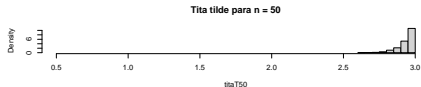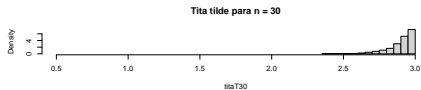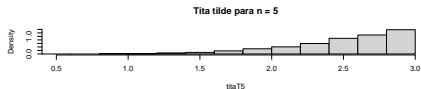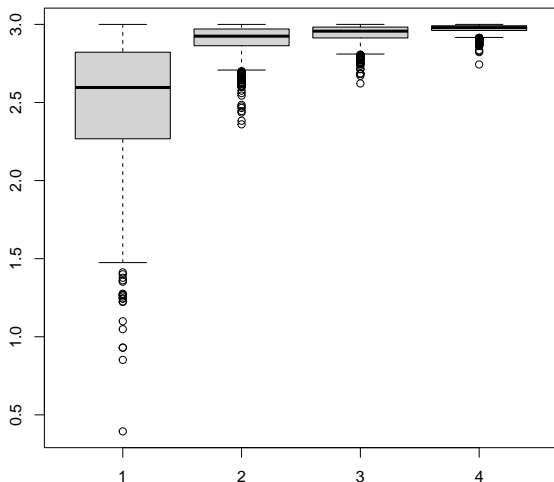
```
par(mfrow=c(1,1))
boxplot(titaT5, titaT30, titaT50, titaT100)
```

```
par(mfrow=c(1,1))
boxplot(titaT5, titaT30, titaT50, titaT100)
```

Ejercicio 2:

7.

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7.

```
sesgoH5 <- mean(titaH5) - 3
sesgoH5
```

Ejercicio 2:

7.

```
sesgoH5 <- mean(titaH5) - 3
sesgoH5
```

[1] -0.01529698

Ejercicio 2:

7.

```
sesgoH5 <- mean(titaH5) - 3
sesgoH5
```

[1] -0.01529698

8.

Ejercicio 2:

7.

```
sesgoH5 <- mean(titaH5) - 3
sesgoH5
```

[1] -0.01529698

8.

```
sesgoT5 <- mean(titaT5) - 3
sesgoT5
```

Ejercicio 2:

7.

```
sesgoH5 <- mean(titaH5) - 3
sesgoH5
```

[1] -0.01529698

8.

```
sesgoT5 <- mean(titaT5) - 3
sesgoT5
```

[1] -0.501009

Ejercicio 2:

7.

```
sesgoH5 <- mean(titaH5) - 3
sesgoH5
```

[1] -0.01529698

8.

```
sesgoT5 <- mean(titaT5) - 3
sesgoT5
```

[1] -0.501009

9.

9.

`boxplot(titaH5, titaT5)`
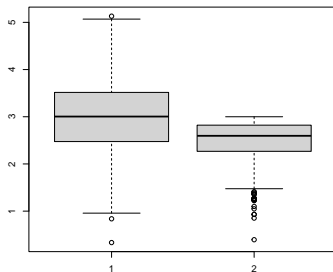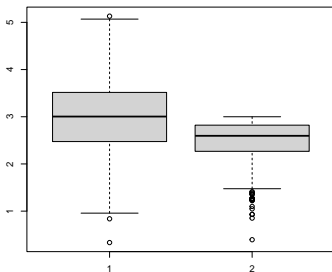
9.

```
boxplot(titaH5, titaT5)
```

```
par(mfrow = c(2,1))
hist(titaH5, freq = F, xlim = c(0.3, 5.15))
hist(titaT5, freq = F, xlim = c(0.3, 5.15))
par(mfrow = c(1,1))
```

10.

10.
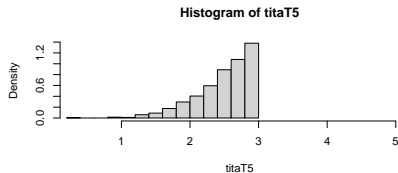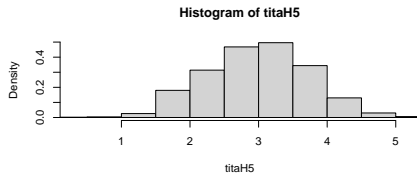
```
varH5 <- var(titaH5)
varH5
```

10.

```
varH5 <- var(titaH5)
varH5
```

```
[1] 0.5561005
```

10.

```
varH5 <- var(titaH5)
varH5
```

[1] 0.5561005

11.

10.

```
varH5 <- var(titaH5)
varH5
```

[1] 0.5561005

11.

```
varT5 <- var(titaT5)
varT5
```

10.

10.

```
varH5 <- var(titaH5)
varH5
```

[1] 0.5561005

11.

```
varT5 <- var(titaT5)
varT5
```

[1] 0.168115

10.

```
varH5 <- var(titaH5)
varH5
```

[1] 0.5561005

11.

```
varT5 <- var(titaT5)
varT5
```

[1] 0.168115

10.

```
m <- 1000
varecmH5 <- varH5*(m-1)/m
varecmH5
```

10.

```
varH5 <- var(titaH5)
varH5
```

[1] 0.5561005

11.

```
varT5 <- var(titaT5)
varT5
```

[1] 0.168115

10.

```
m <- 1000
varecmH5 <- varH5*(m-1)/m
varecmH5
```

[1] 0.5555444

10.

```
varH5 <- var(titaH5)
varH5
```

[1] 0.5561005

11.

```
varT5 <- var(titaT5)
varT5
```

[1] 0.168115

10.

```
m <- 1000
varecmH5 <- varH5*(m-1)/m
varecmH5
```

[1] 0.5555444

11.

10.

```
varH5 <- var(titaH5)
varH5
```

[1] 0.5561005

11.

```
varT5 <- var(titaT5)
varT5
```

[1] 0.168115

10.

```
m <- 1000
varecmH5 <- varH5*(m-1)/m
varecmH5
```

[1] 0.5555444

11.

```
varecmT5 <- varT5*(m-1)/m
varecmT5
```

10.

```r
varH5 <- var(titaH5)
varH5
```

[1] 0.5561005

11.

```r
varT5 <- var(titaT5)
varT5
```

[1] 0.168115

10.

```r
m <- 1000
varecmH5 <- varH5*(m-1)/m
varecmH5
```

[1] 0.5555444

11.

```r
varecmT5 <- varT5*(m-1)/m
varecmT5
```

[1] 0.1679468

10.

```
varH5 <- var(titaH5)
varH5
```

[1] 0.5561005

11.

```
varT5 <- var(titaT5)
varT5
```

[1] 0.168115

10.

```
m <- 1000
varecmH5 <- varH5*(m-1)/m
varecmH5
```

[1] 0.5555444

11.

```
varecmT5 <- varT5*(m-1)/m
varecmT5
```

[1] 0.1679468

12.

13.

13.

```
mseH5 <- mean((titaH5-3)^2)
mseH5
```

13.

```
mseH5 <- mean((titaH5-3)^2)
mseH5
```

[1] 0.5557784

13.

```
mseH5 <- mean((titaH5-3)^2)
mseH5
```

[1] 0.5557784

14.

13.

```
mseH5 <- mean((titaH5-3)^2)
mseH5
```

[1] 0.5557784

14.

```
mseT5 <- mean((titaT5-3)^2)
mseT5
```

13.

```
mseH5 <- mean((titaH5-3)^2)
mseH5
```

[1] 0.5557784

14.

```
mseT5 <- mean((titaT5-3)^2)
mseT5
```

[1] 0.4189569

13.

```
mseH5 <- mean((titaH5-3)^2)
mseH5
```

[1] 0.5557784

14.

```
mseT5 <- mean((titaT5-3)^2)
mseT5
```

[1] 0.4189569

13.

13.

```
mseH5 <- mean((titaH5-3)^2)
mseH5
```

[1] 0.5557784

14.

```
mseT5 <- mean((titaT5-3)^2)
mseT5
```

[1] 0.4189569

13.

```
sesgoH5^2 + varecmH5
```

13.

```
mseH5 <- mean((titaH5-3)^2)
mseH5
```

[1] 0.5557784

14.

```
mseT5 <- mean((titaT5-3)^2)
mseT5
```

[1] 0.4189569

13.

```
sesgoH5^2 + varecmH5
```

[1] 0.5557784

13.

```
mseH5 <- mean((titaH5-3)^2)
mseH5
```

[1] 0.5557784

14.

```
mseT5 <- mean((titaT5-3)^2)
mseT5
```

[1] 0.4189569

13.

```
sesgoH5^2 + varecmH5
```

[1] 0.5557784

14.

13.

```
mseH5 <- mean((titaH5-3)^2)
mseH5
```

[1] 0.5557784

14.

```
mseT5 <- mean((titaT5-3)^2)
mseT5
```

[1] 0.4189569

13.

```
sesgoH5^2 + varecmH5
```

[1] 0.5557784

14.

```
sesgoT5^2 + varecmT5
```

13.

```
mseH5 <- mean((titaH5-3)^2)
mseH5
```

[1] 0.5557784

14.

```
mseT5 <- mean((titaT5-3)^2)
mseT5
```

[1] 0.4189569

13.

```
sesgoH5^2 + varecmH5
```

[1] 0.5557784

14.

```
sesgoT5^2 + varecmT5
```

[1] 0.4189569

13.

```
mseH5 <- mean((titaH5-3)^2)
mseH5
```

[1] 0.5557784

14.

```
mseT5 <- mean((titaT5-3)^2)
mseT5
```

[1] 0.4189569

13.

```
sesgoH5^2 + varecmH5
```

[1] 0.5557784

14.

```
sesgoT5^2 + varecmT5
```

[1] 0.4189569