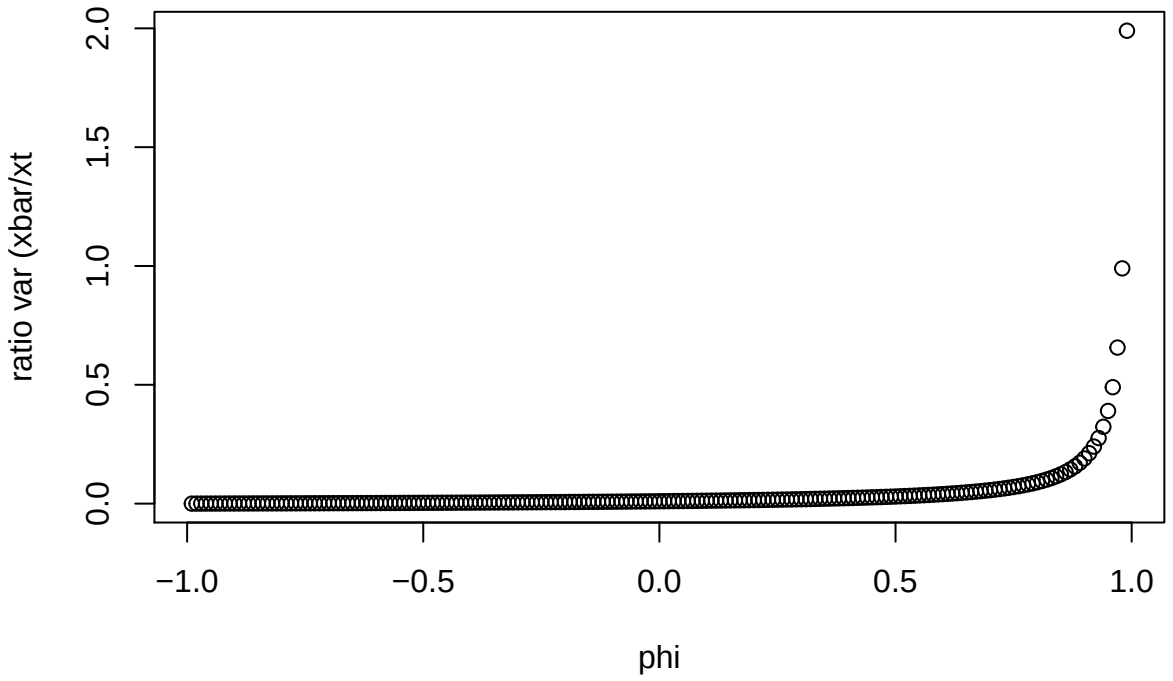
Homework 4

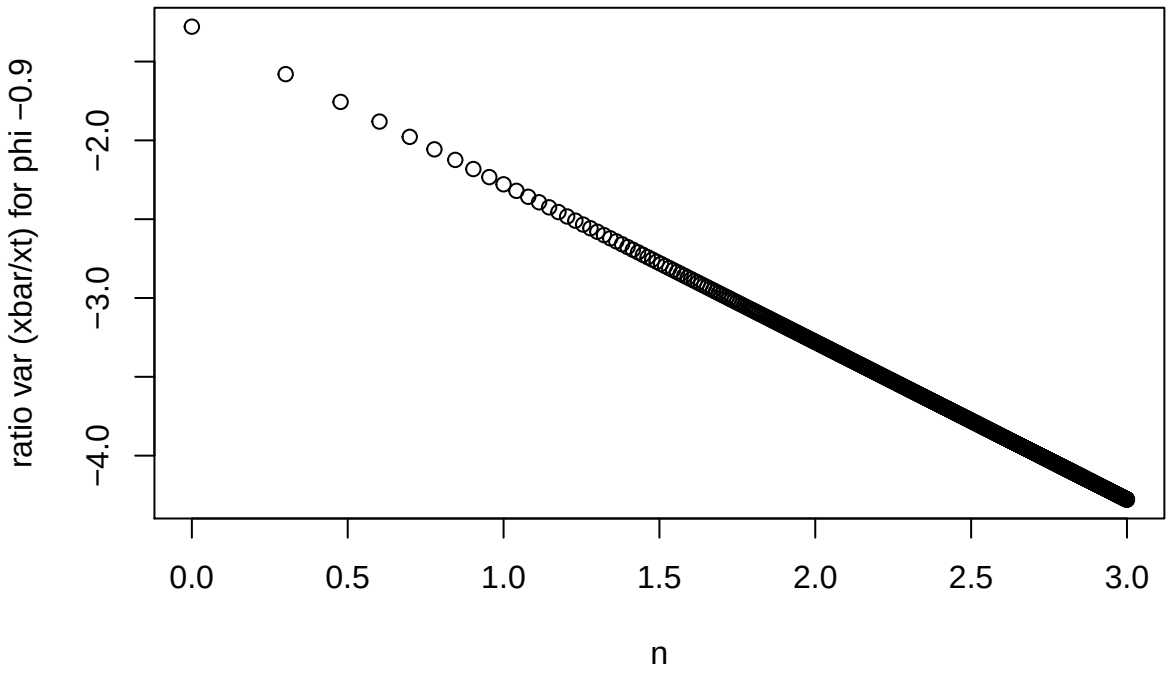
Problem 12 b

```
phis <- seq(-0.99,0.99,0.01)
rationvar <- (1+ phis)/(100*(1-phis))

plot(phis,rationvar,xlab = "phi", ylab = "ratio var (xbar/xt")
```

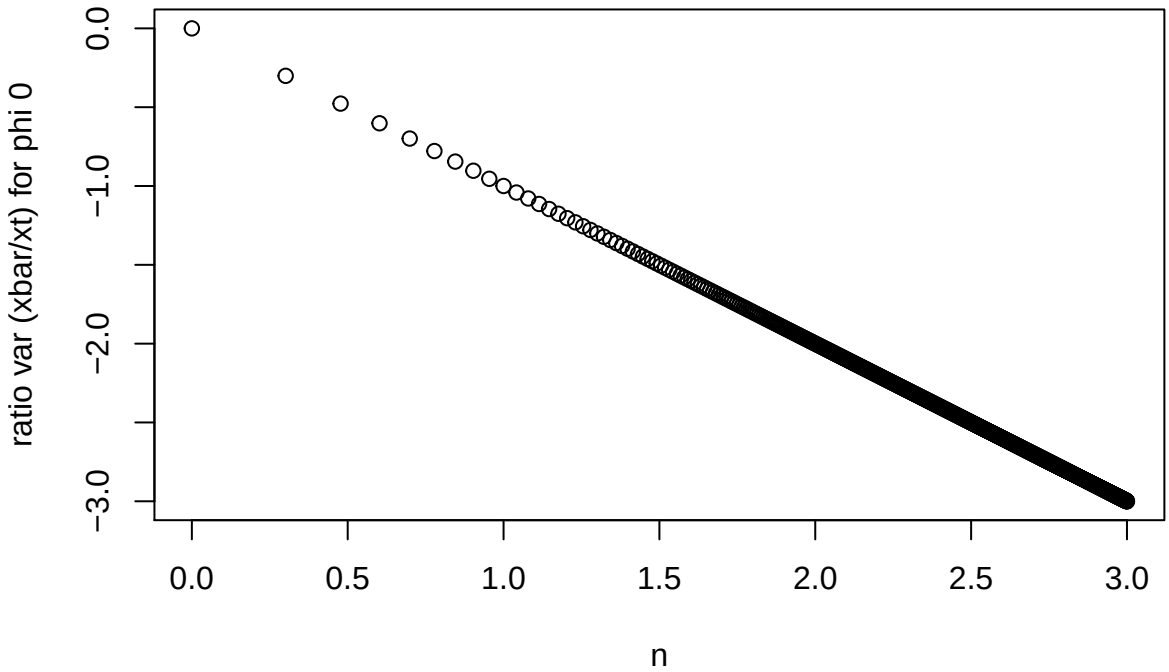


Problem 12 c

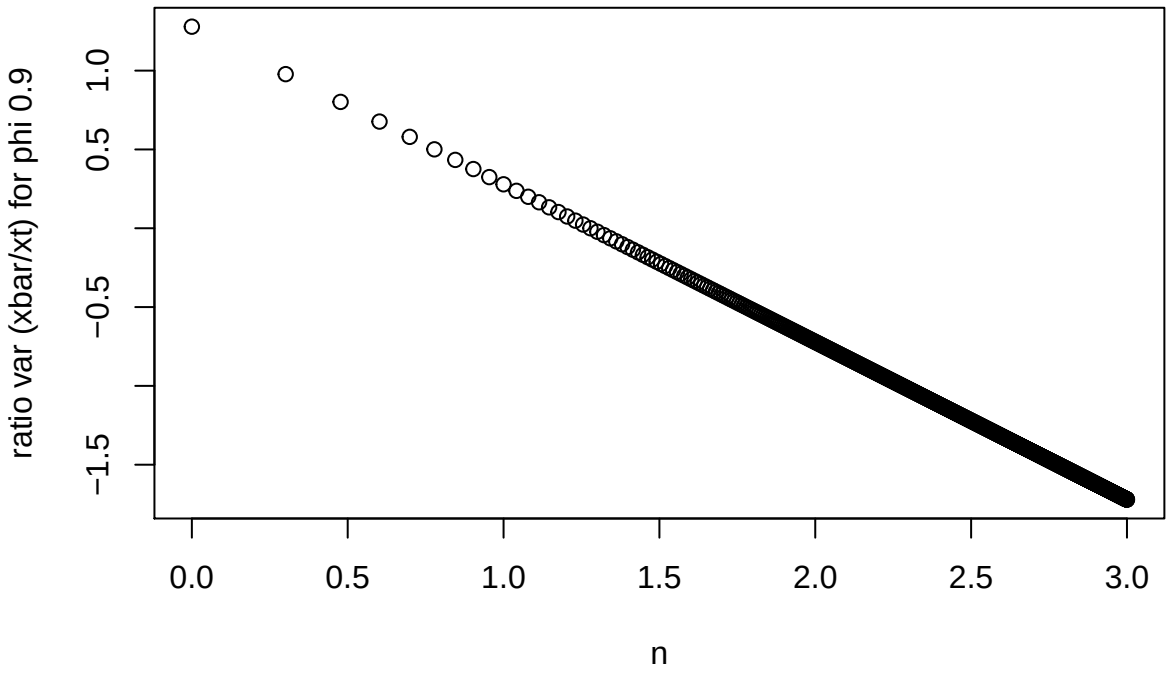
```
n <- seq(1,1000,1)
phi1 <- -0.9
rationvar1 <- (1+ phi1)/(n*(1-phi1))

plot(log10(n),log10(rationvar1),xlab = "n", ylab = "ratio var (xbar/xt) for phi -0.9")
```




```
n <- seq(1,1000,1)
phi2 <- 0
rationvar2 <- (1+ phi2)/(n*(1-phi2))

plot(log10(n),log10(rationvar2),xlab = "n", ylab = "ratio var (xbar/xt) for phi 0")
```




```
n <- seq(1,1000,1)
phi3 <- 0.9
rationvar3 <- (1+ phi3)/(n*(1-phi3))

plot(log10(n),log10(rationvar3),xlab = "n", ylab = "ratio var (xbar/xt) for phi 0.9")
```


ratio var (xbar/xt) for phi 0.9
1.0
0.5
−0.5
−1.5
0.0
0.5
1.0
1.5
2.0
2.5
3.0
n