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HW 1 REVIEW (in class)

**6.**

t<- c(1,2,3,4,5)

N<- c(100,158,315,398,794)

log.N<-log(N)

plot(log.N ~ t, type='b')

?lm()

model<-lm(log.N ~ t)

model$coefficients

**7.**

## Number 6

t<- c(1,2,3,4,5)

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log.N<-log(N)

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?lm()

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## Number 7

## First we need to simulate the model

exp.growth <- function(t, y, p) {

N <- y[1]

with(as.list(p), {

dN.dt <- r \* N

return(list(dN.dt))

})

}

## Name variables and assign them values

p<-('r'=0.25)

y0<-c('N'=1)

t<-1:100

install.packages('deSolve')

library(deSolve)

## Simulate the Model

?ode

sim<- ode(y = y0, times = t, func = exp.growth, parms = p, method = 'lsoda')

## Store results in a dataframe:

sim<-as.data.frame(sim)

## Simulate the model with a different value of r:

p.2<- c('r'=0.8)

## Let the new parm be p.2 instead of p:

sim.2<-ode(y = y0, times = t, func = exp.growth, parms = p.2, method = 'lsoda')

## Store results in a different dataframe:

sim.2<-as.data.frame(sim.2)

## Plot these on the same figure, and tell R what data you are using:

## Define that you want the plot to be described with a line and not points:

plot(N ~ time, data = sim, type = 'l')

## Plot the two models on the same graph unsing 'points' on the second simulation:

plot(N ~ time, data = sim, type = 'l', col = 'red')

points(N ~ time, data = sim.2, type = 'l', col = 'purple')