## HW15

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#1

m1 <- c(0,1/3,1/3,1/3)

m2 <- c(0,0,1/2,1/2)

m3 <- c(1,0,0,0)

m4 <- c(1/2,0,1/2,0)

P0 <- c(1,0,0,0)

M <- cbind(m1,m2,m3,m4)

Pnew <- c(0,0,0,0)

while (abs(PT - Pnew)>0.0001) {

T <- 1

PT <- M^T %\*% P0

Pnew <- PT %\*% M

T <- T + 1

}

eigen.Pnew <- eigen(Pnew)

#2

ind <- 1:1000

M <- matrix(rep(0,1000^2), nrow=1000,ncol=1000)

for (i in 1:1000) {

a <- sample(x=1:10, size=1)

b <- sample(x=1:1000, size=a)

M[b,i] = 1/a

}

B <- t(M)%\*%M

eigen.B <- eigen(B)