makeCacheMatrix <- function(x = matrix()) {

inv <- NULL

set <- function(y) {

x <<- y

inv <<- NULL

}

get <- function() x

setinverse <- function(inverse) inv <<- inverse

getinverse <- function() inv

list(set = set, get = get,

setinverse = setinverse,

getinverse = getinverse)

}

cacheSolve <- function(x, ...) {

inv <- x$getinverse()

if(!is.null(inv)) {

message("getting cached matrix inverse")

return(inv)

}

data <- x$get()

inv <- solve(data, ...)

x$setinverse(inv)

inv

}