**Assignment 14.1**

## (a) (2, 3, . , 29, 30)

veca=seq(2, 30, by=1)

2:30

## (b) (30, 29, . , 2)

vecb=seq(30, 2, by=-1)

30:2

## (c) (1, 2, 3, .. , 29, 30, 29, 28, , 2, 1)

vecc=c(seq(1, 30, by=1),seq(29, 1, by=-1))

vecc2=c(1:30,29:1)

## (d) (4, 6, 3) and assign it to the name dev.

dev <- c(4, 6, 3)

## (e) (5, 6, 7, 5, 6, 7, , 5, 6, 7) where there are 10 occurrences of 5.

vece=rep((5:7), times=10)

## (5, 6, 7, 5, 6, 7, , 5, 6, 7, 5)

## where there are 11 occurrences of 5, 10 occurrences of 6 and 10 occurrences of 7.

vecf=c(rep((5:7), times=10), 5)

## (g) (4, 4, , 4, 6, 6, , 6, 3, 3, , 3)

## where there are 10 occurrences of 4, 20 occurrences of 6 and 30 occurrences of 3

vecg=c(rep(4, times=10), rep(6, times=20), rep(3, times=30))

## 2. Create a vector of the values of eX sin(x) at x = 3, 3.1, 3.2, , 6.

vec22=c(exp(seq(3, 6, by=0.1)) \* sin(seq(3, 6, by=0.1)))

## 3

set.seed(50)

x <- sample(0:999, 250, replace=T)

y <- sample(0:999, 250, replace=T)

## a) Identify out the values in y which are > 500.

y[y>500]

## b) Identify the index positions in y of the values which are > 700?

(1:length(y))[y>700]

# or

which(y>700)

## c) What are the values in x which are in Same index position to the values in y which are > 400?

x[y>400]

## d) How many values in y are within 200 of the maximum value of the terms in y?

sum( y>(max(y)-200) )

## e) How many numbers in x are divisible by 2?

sum(x%%2==0)

## f) Sort the numbers in the vector x in the order of increasing values in y.

x[order(y)]

## g) Create the vector (x1 + 2x2 - x3; x2 + 2x3 -x4 ,, xn???2 + 2xn???1 - xn).

x[-c(249,250)] + 2\*x[-c(1,250)]-x[-c(1,2)]

## h) Calculate:

## n-1

## Σ (e(−xi+10)/ xi + 10)

## i=1

calculate=sum((exp(x[-length(x)]+10))/(x[-length(x)]+10))

print(calculate)