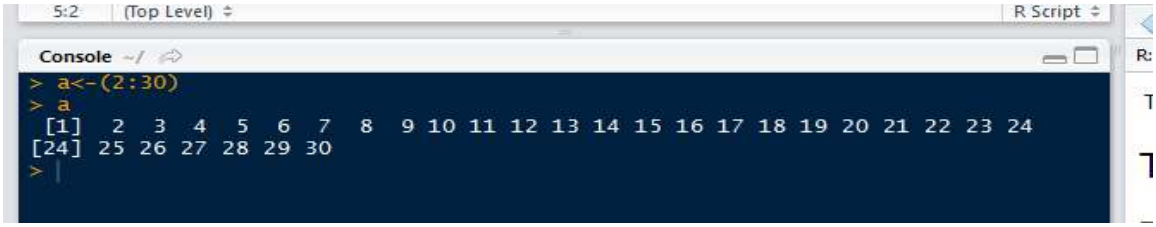
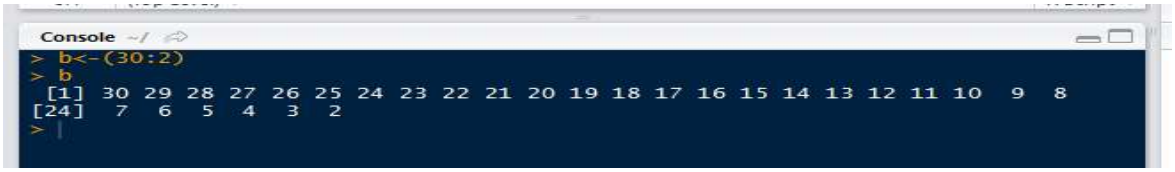
# Acadgild Solutions for Business analysis with R _session 4 _Assignment 1

Solutions for Question 1 to Question 6
Question 1 Create the vectors
(a) (2, 3, … , 29, 30)
(b) (30, 29, … , 2)
(c) (1, 2, 3, …. , 29, 30, 29, 28, , 2, 1)
(d) (4, 6, 3) and assign it to the name dev.
For parts (e), (f) and (g) .
(e) (5, 6, 7, 5, 6, 7, , 5, 6, 7) where there are 10 occurrences of 5.
(f) (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.
(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.

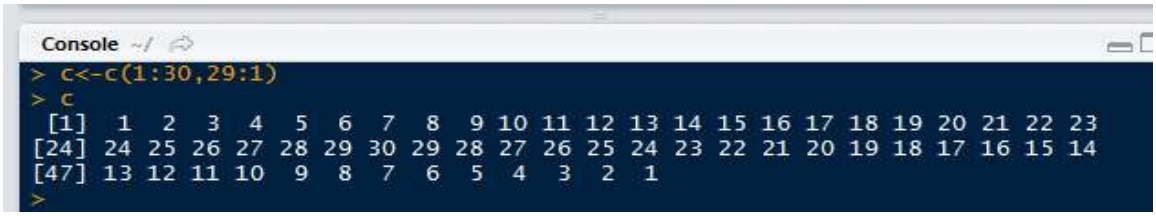
**Answer 1**
**RCommands:**
Part a)
a<-(2:30)
a




**Part b)**
b<-(30:2)
b




**Part c)**
c<-c1:30,29:1)
c



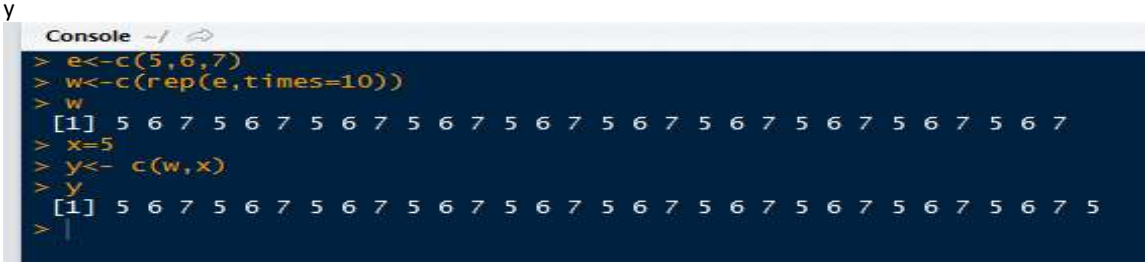

**Part d)**
dev<- c(4,6,3)
dev

**Part e)**

```
e<-c(5,6,7)
rep(e, times=10)
```

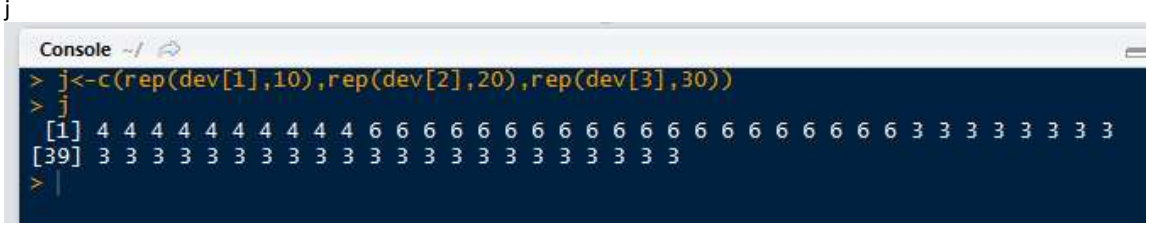

**Part f)**

```
e<-c(5,6,7)
w<-c(rep(e,times=10))
w
x=5
y<-c(w,x)
y
```




**Part g)**

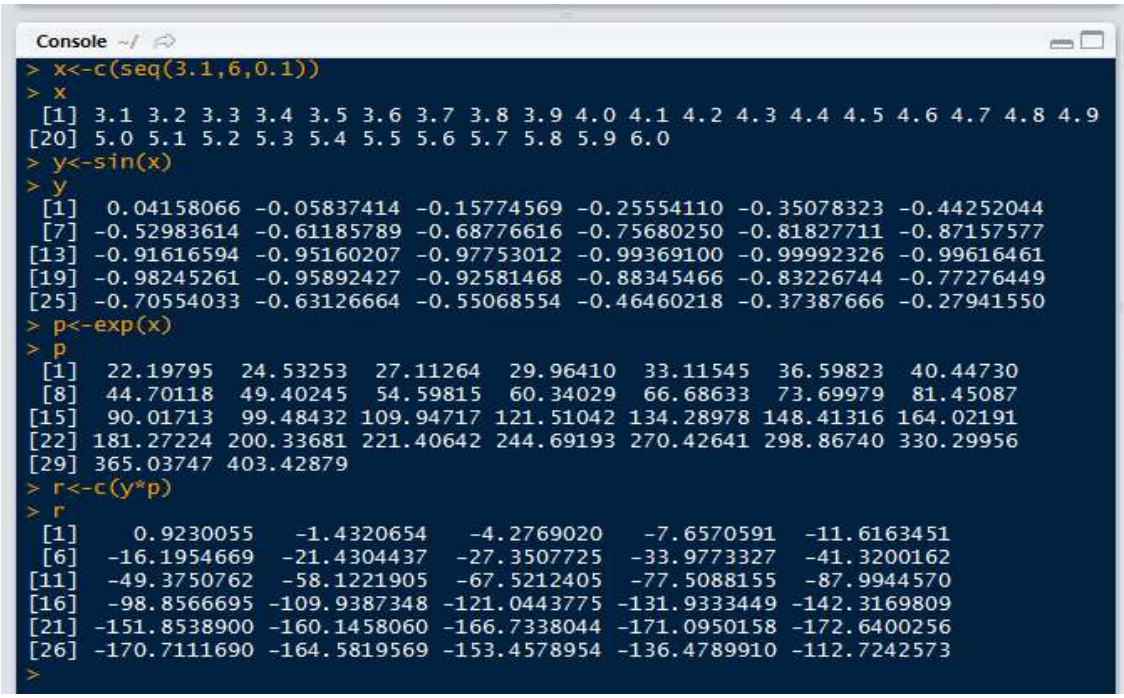
```
j<-c(rep(dev[1],10),rep(dev[2],20),rep(dev[3],30))
j
```




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

**Rcommands:**

```
x<-c(seq(3.1,6,0.1))
x
y<-sin(x)
y
p<-exp(x)
p
r<-c(y*p)
r
```




**Question 3 : Execute the following lines which create two vectors of random integers which are chosen with replacement from the integers 0, 1, : : : , 999. Both vectors have length 250.**

set.seed(100)
x <- Sample (0:999, 250, replace=T)
y <- Sample (0:999, 250, replace=T)
(a) Identify out the values in y which are > 500.
(b) Identify the index positions in y of the values which are > 700?
(c) What are the values in x which are in Same index position to the values in y which are > 400?
(d) How many values in y are within 200 of the maximum value of the terms in y?
(e) How many numbers in x are divisible by 2?
(f) Sort the numbers in the vector x in the order of increasing values in y.
(g) Create the vector (x1 + 2x2 - x3; x2 + 2x3 -x4 ,, xn−2 + 2xn−1 - xn).

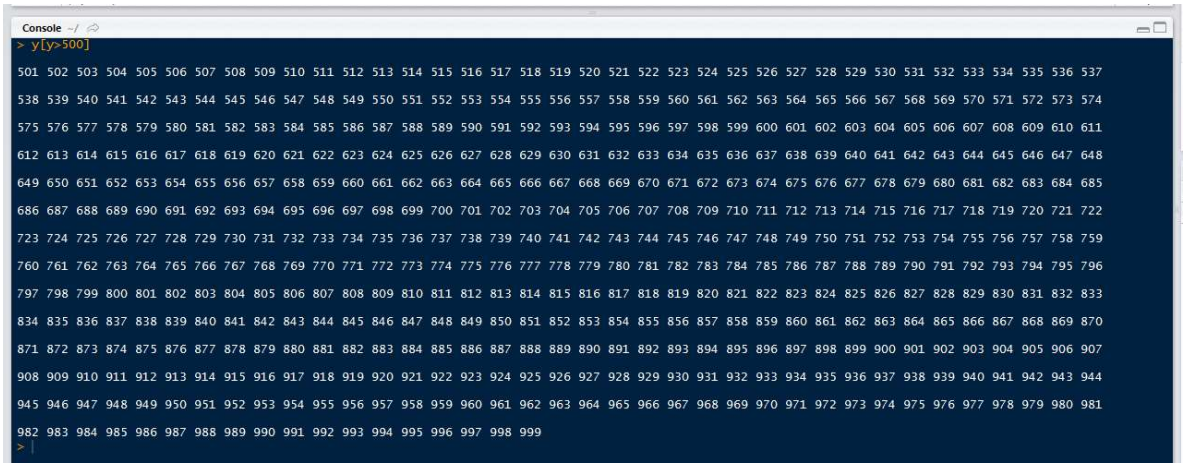
**Answer 3**

**Rcommands:**

set.seed(100)
x <- Sample (0:999, 250, replace=T)
y <- Sample (0:999, 250, replace=T)

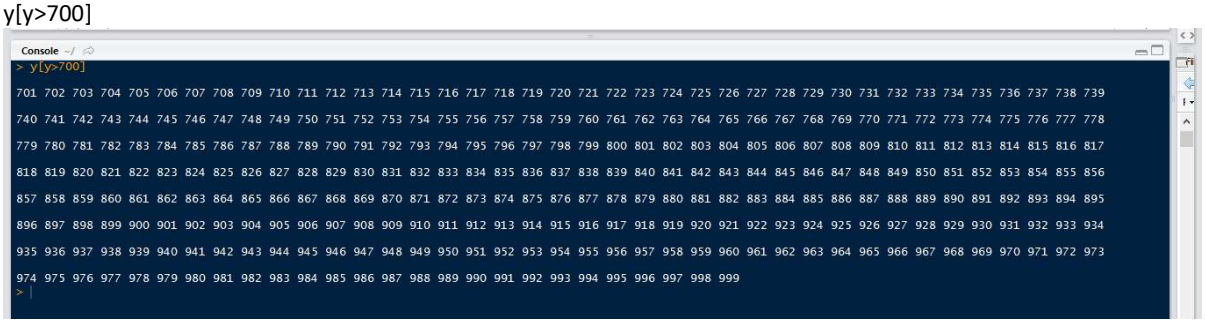
**Part a)**

y[y>500]



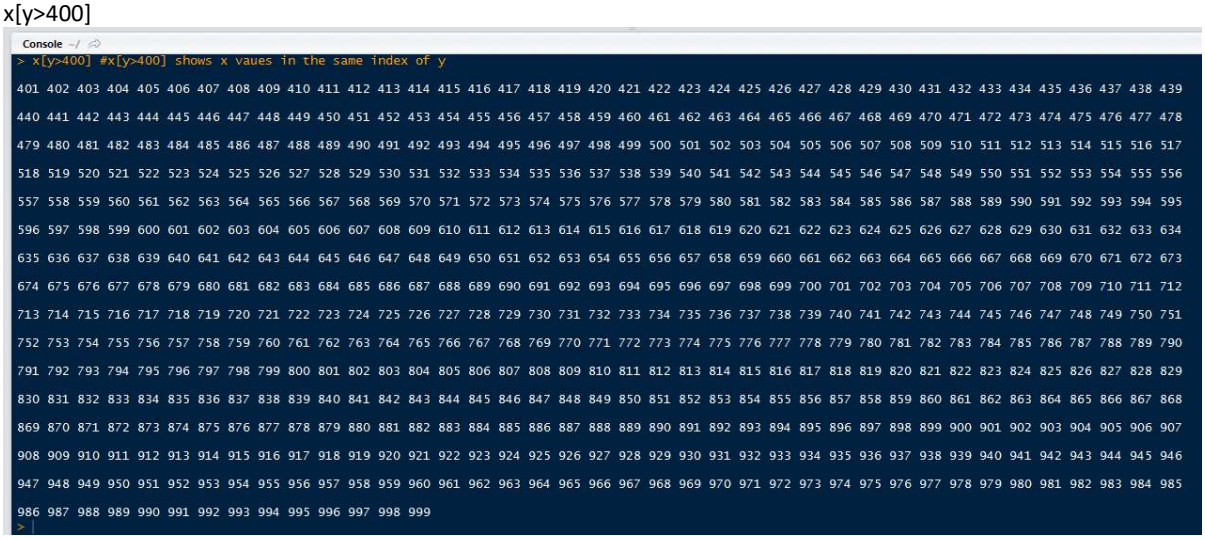

**Part b)**

y[y>700]



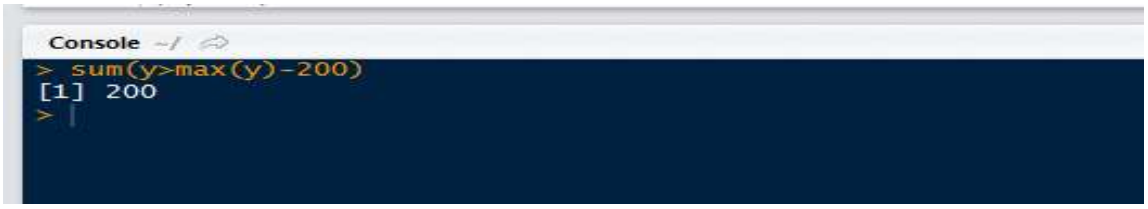

**Part c)**

x[y>400]




**Part d)**

sum(y>max(y)-200)

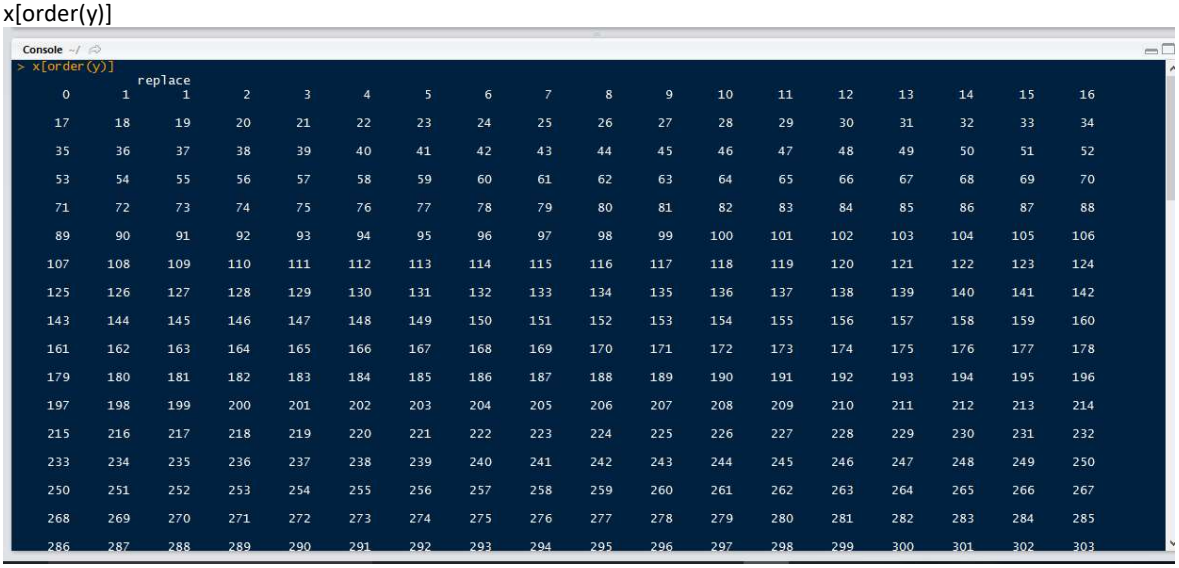


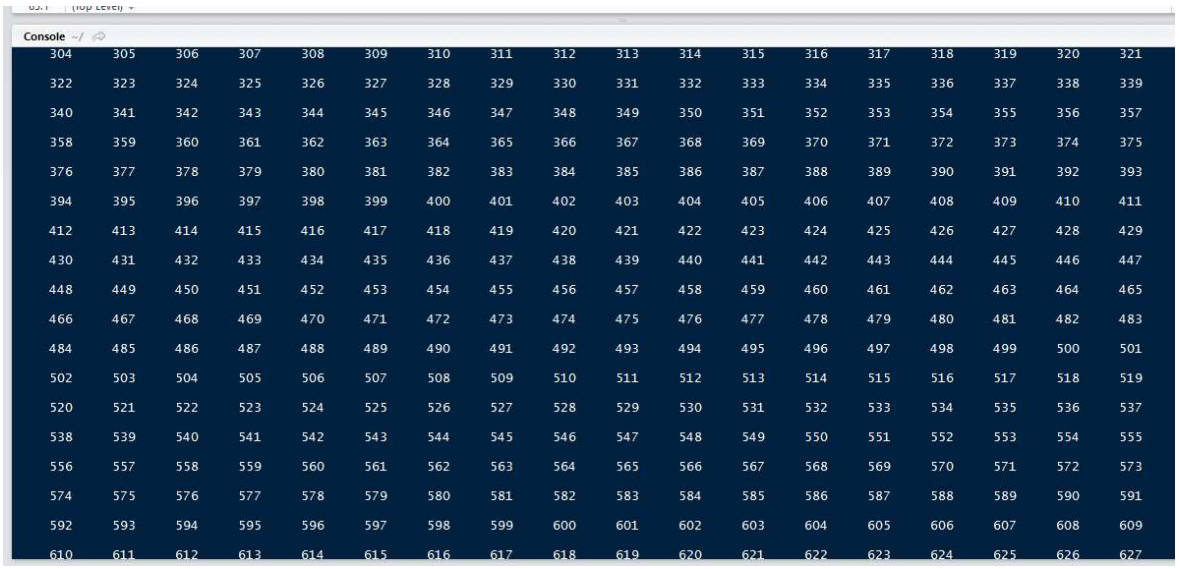
**Part e)**

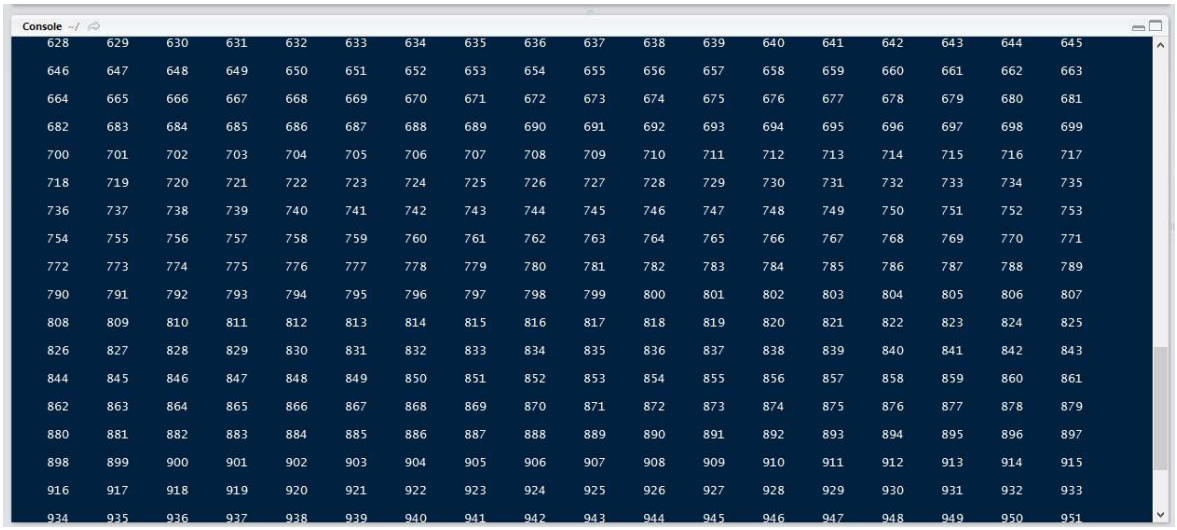
length(y[y%%2==0])

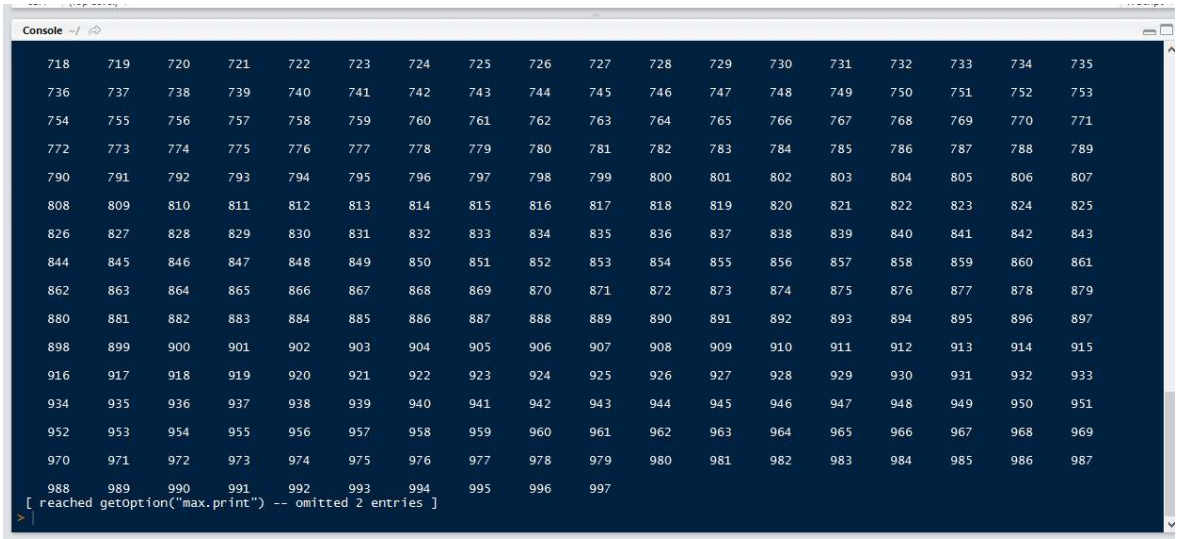

**Part f)**

x[order(y)]






**Part g)**

Question-4:

Use the function paste to create the following character vectors of length 30:

(a) ("Label 1", "Label 2", ....., "Label 30")

*Note that there is a single space between label and the number following.

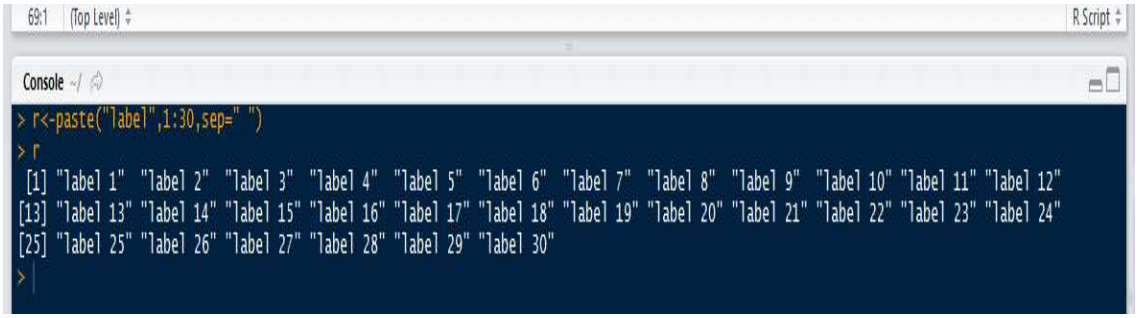
(b) ("FN1", "FN2", ..., "FN30").

**In this case, there is no space between fn and the number following.

**Answer 4**

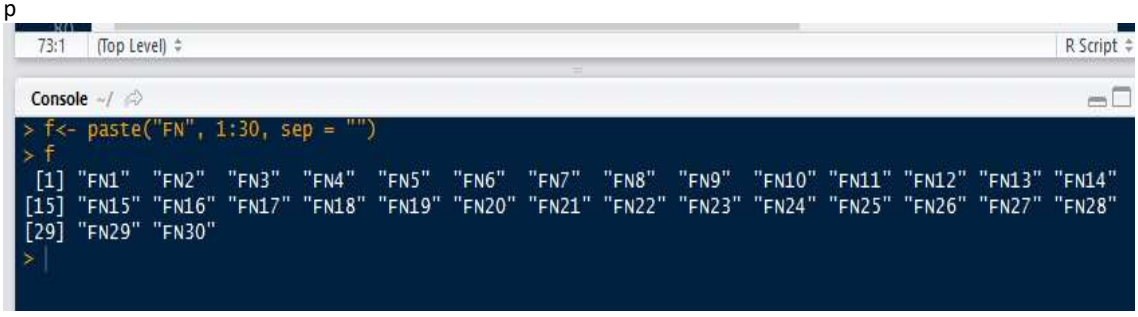
**Part a)**

```
r<-paste("label",1:30,sep=" ")
r
```




**Part b)**

```
p<-paste0("FN",1:30, sep="")
p
```




**Question 5 :**

Compound interest can be computed using the formula

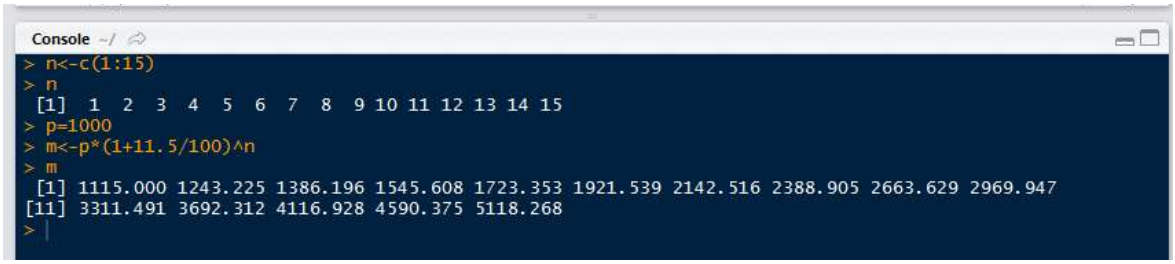
A = P × (1 + R/100)n, where P is the original money lent, A is what it amounts to in n years at R percent per year interest.

Write R code to calculate the amount of money owed after n years, where n changes from 1 to 15 in yearly increments, if the money lent originally is 10000 Rupees and the interest rate remains constant throughout the period at 11.5%.

**Answer 5**

**# A = P × (1 + R/100)n, where P is the original money lent, A is what it amounts to in n years at R percent per year interest.**

```
n<-c(1:15)
n
p=1000
p
m<-p*(1+11.5/100)^n
m
```



**Question 6 Generate the following matrices.**
**[,1] [,2] [,3] [,4]**
**[1,] 1 101 201 301**
**[2,] 2 102 202 302**
**[3,] 3 103 203 303**
**[4,] 4 104 204 304**
**[5,] 5 105 205 305**

**Answer 6**
**Rcommands:**

```
n<-c(1:5,101:105,201:205,301:305)
n
mymatrix<-matrix(n,5,4)
mymatrix
```