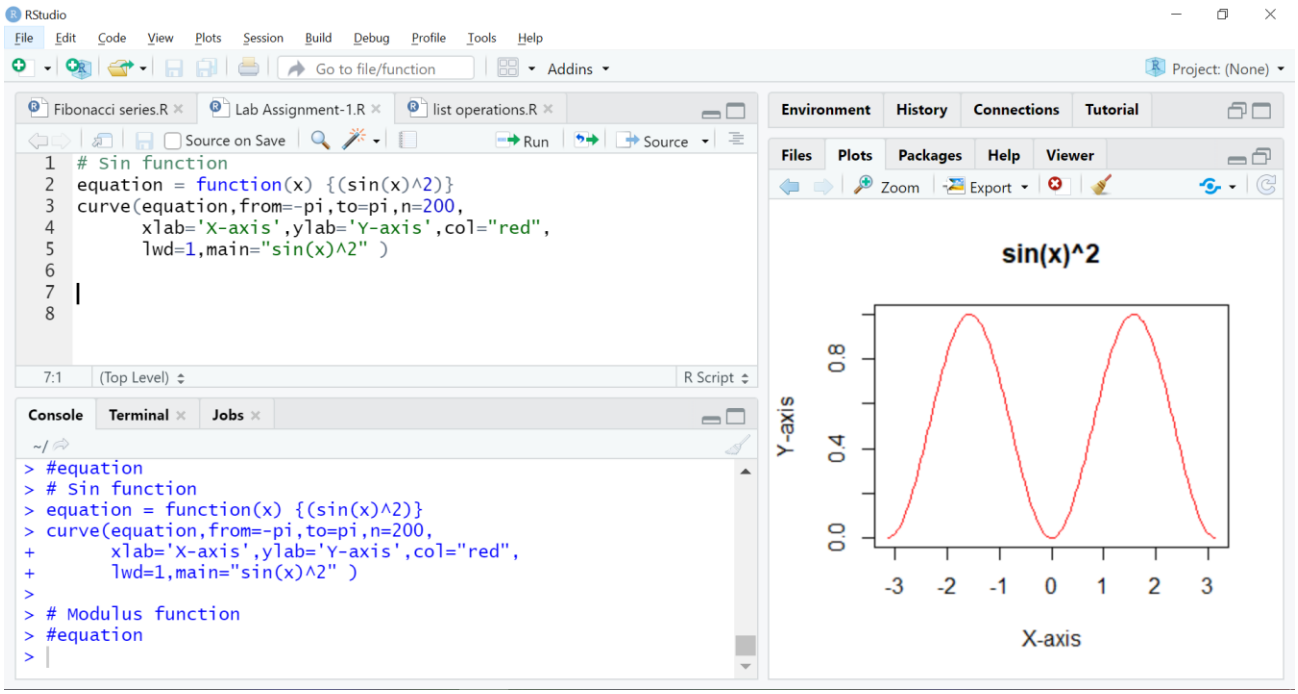
Statistics for Engineers

Lab assessment – 1

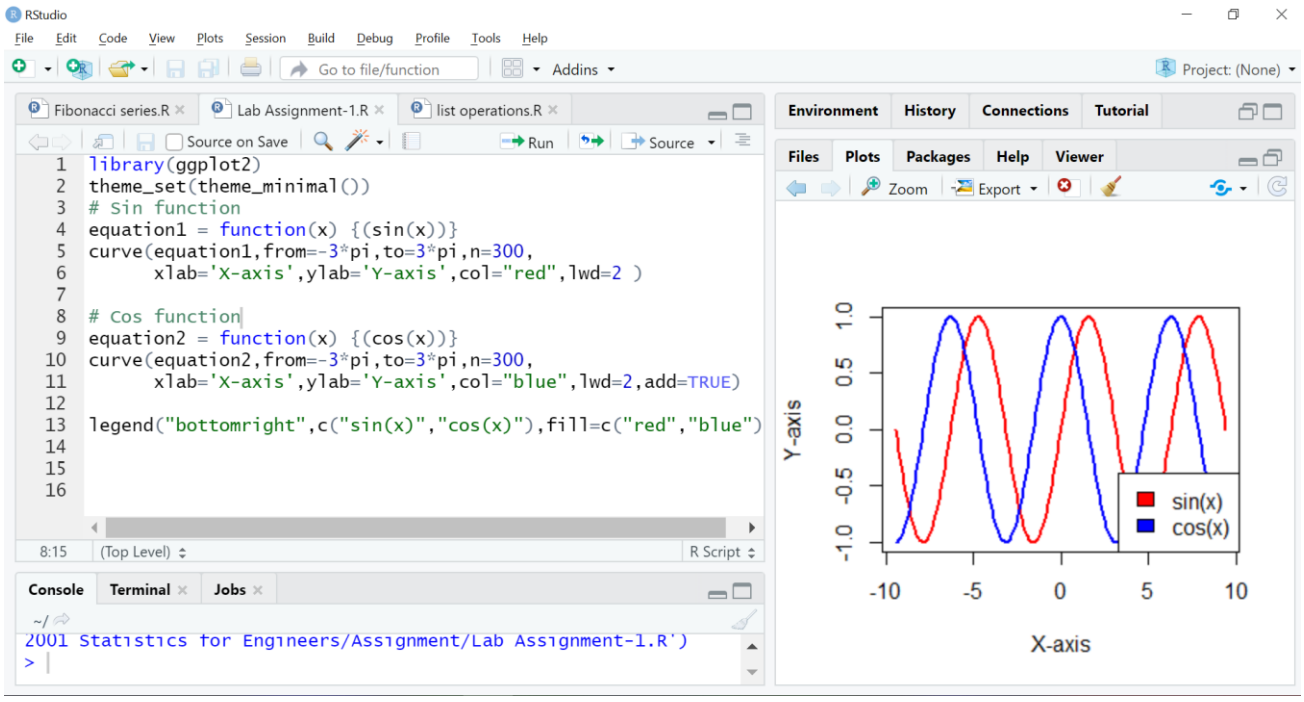
Prashanth.S

19MID0020

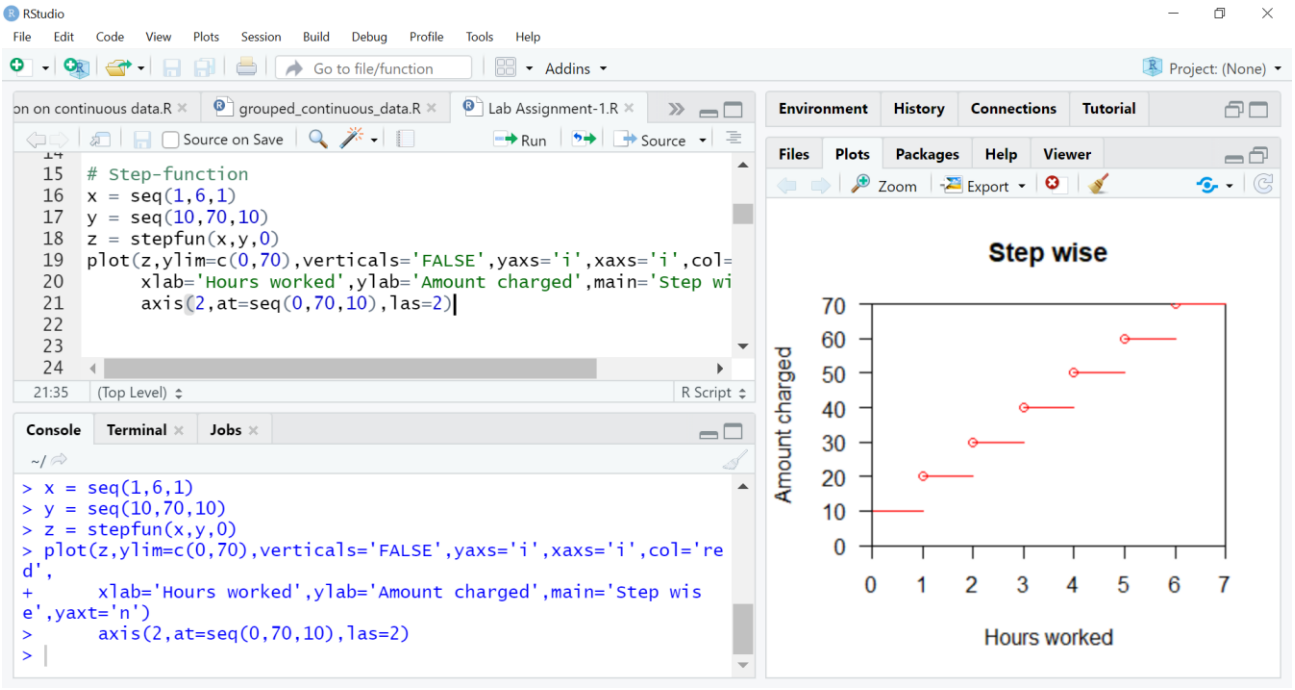
1) Sin function



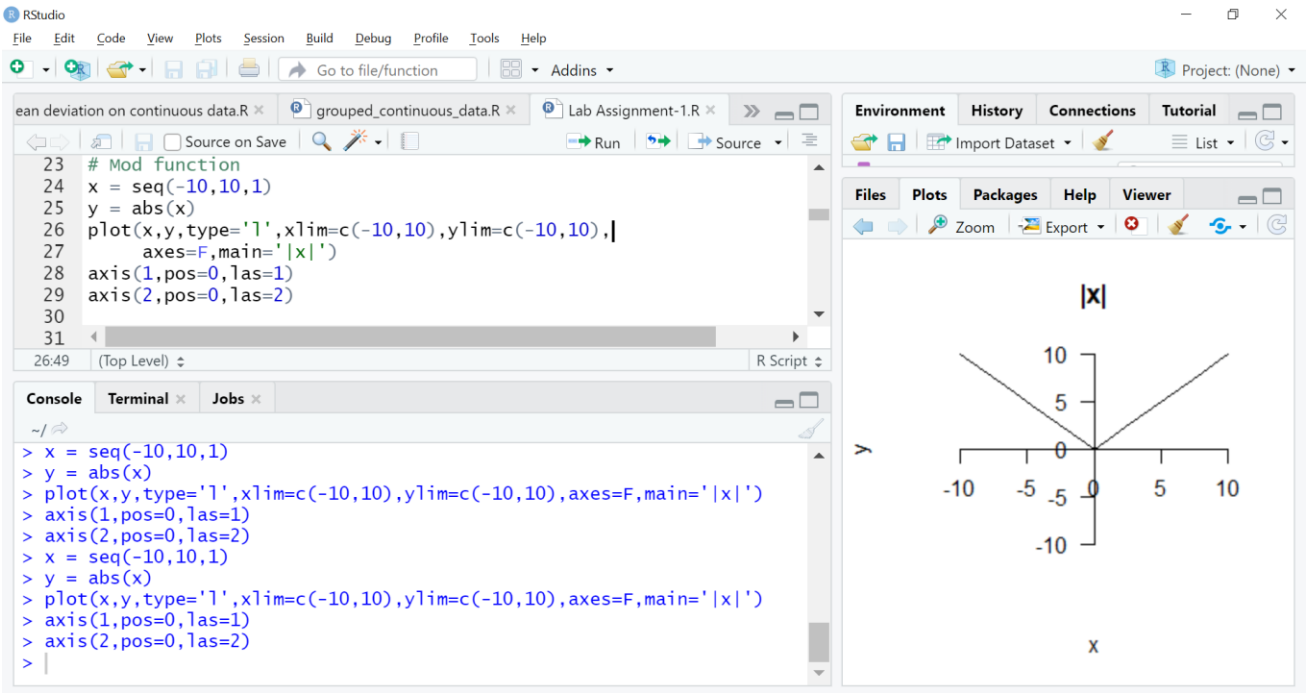
2) Sin and cos function



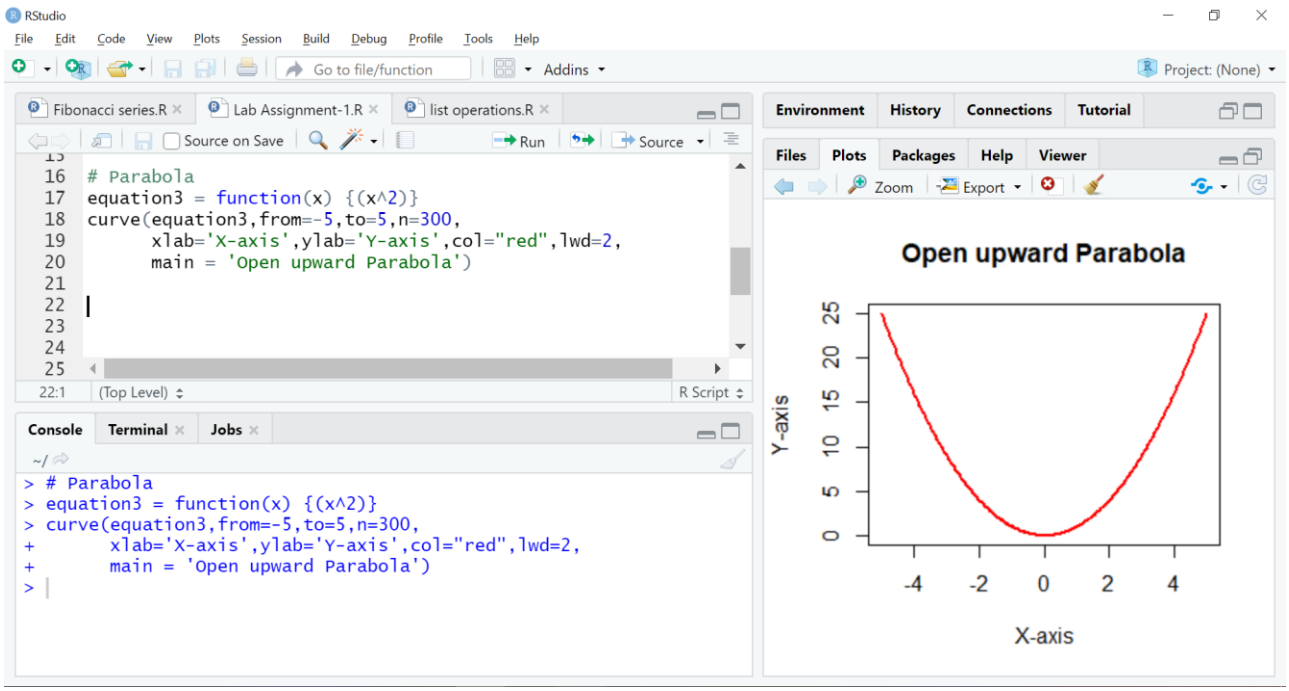
3)Step-function



3)Mod function



5) Parabola



3. If

$$A = \begin{bmatrix} 1 & 2 & -8 & 14 & 7 \\ 13 & 24 & 17 & 5 & 9 \\ 7 & 32 & 10 & 14 & 5 \\ 3 & 4 & 53 & 34 & 43 \\ 9 & 11 & 14 & -10 & 4 \end{bmatrix}$$

and

$$B = \begin{bmatrix} -10 & 12 & 11 & 4 & 2 \\ 9 & 21 & 7 & 13 & 8 \\ 17 & 2 & 1 & 17 & -19 \\ 2 & 7 & 5 & 3 & 4 \\ 15 & 1 & 4 & -31 & 14 \end{bmatrix}$$

then write R code to find the following:

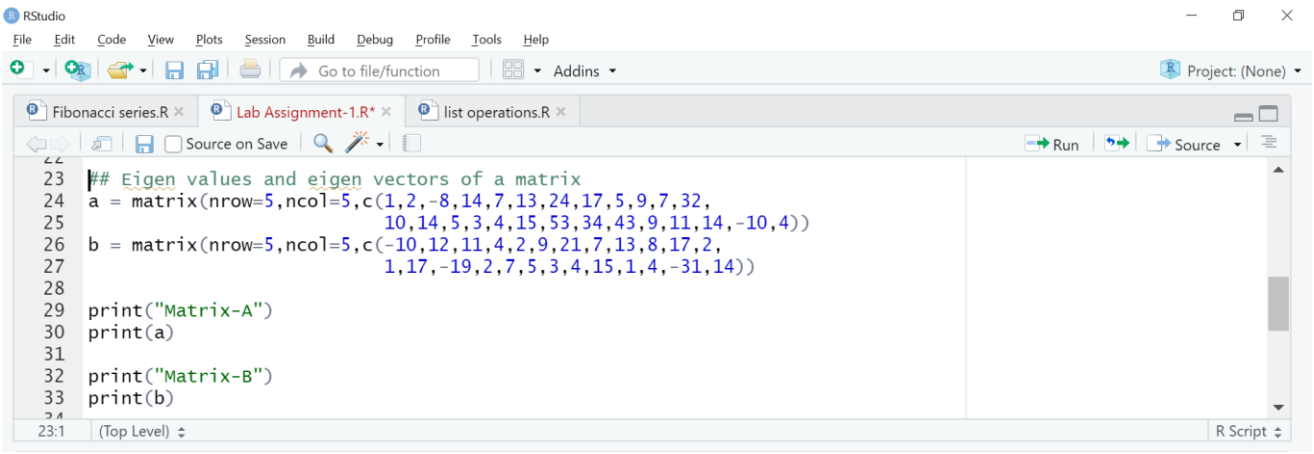
(i) the eigenvalue and eigenvector of A and B.

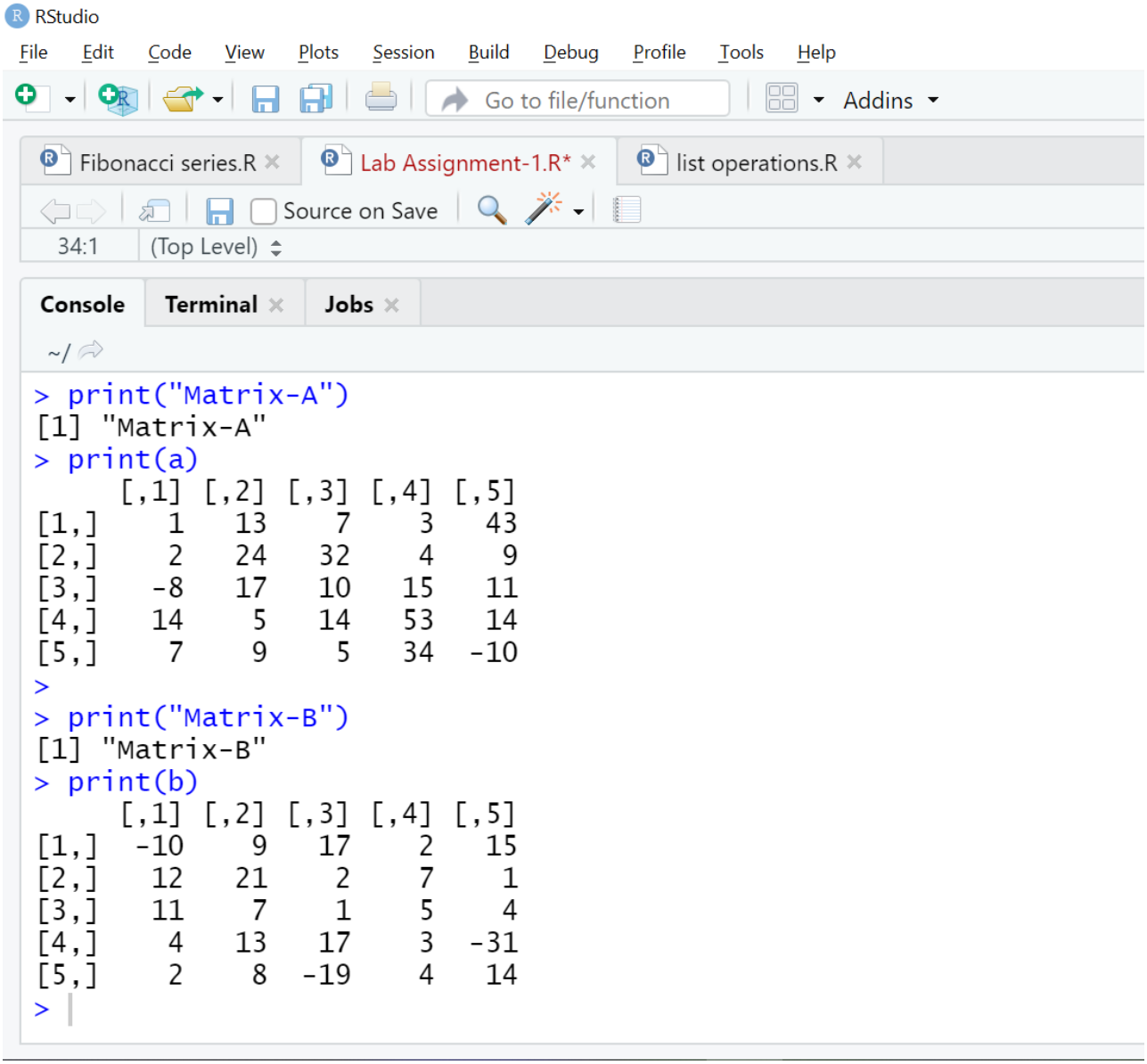
(ii) check whether $(AB)^{-1} = B^{-1}A^{-1}$

(iii) dimension of $4 * A^5 - 5A^3 + A^2$

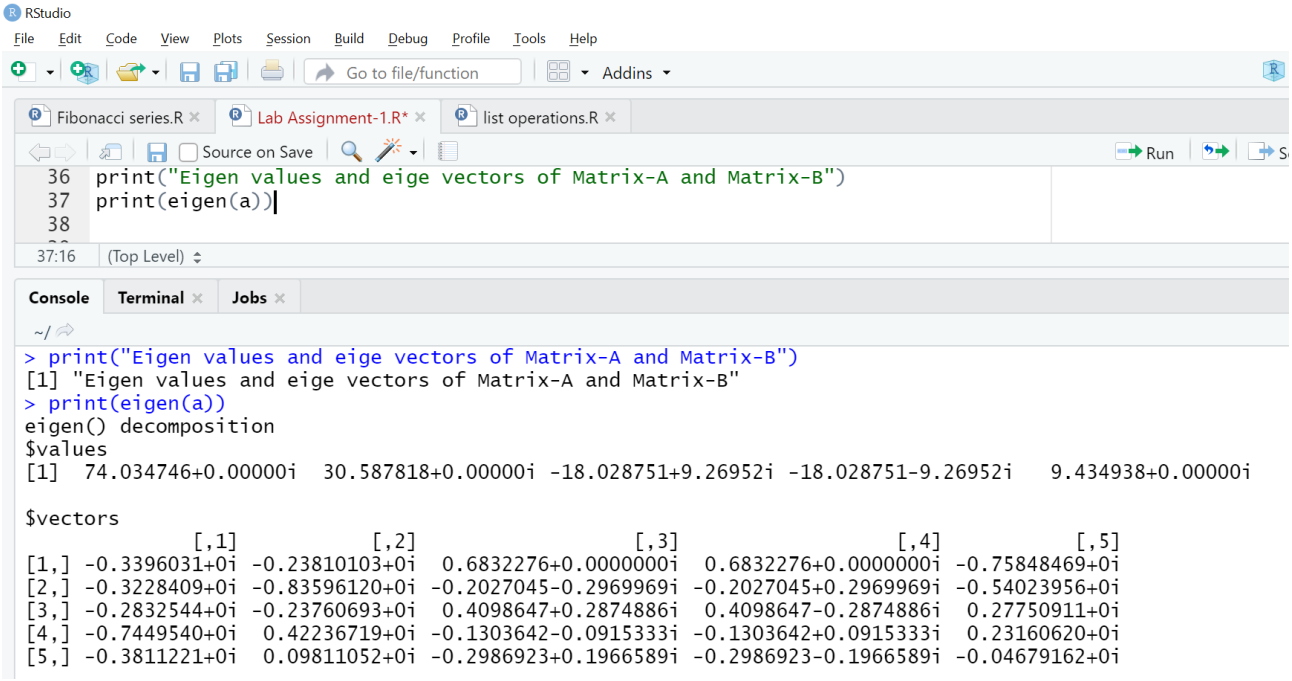
(iv) replace 4^{th} row of A by (5 -4 6 3 2) and 5^{th} column of B by (14 9 43 24 26).

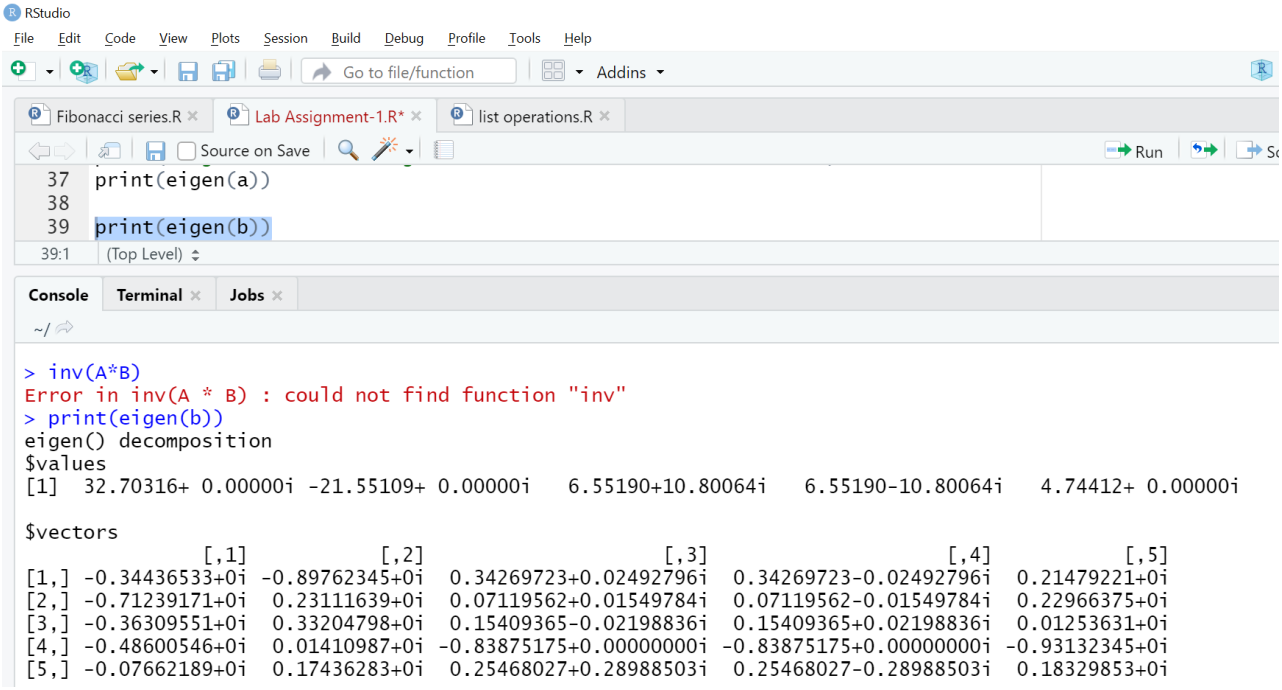
Matrix-A and Matrix-B



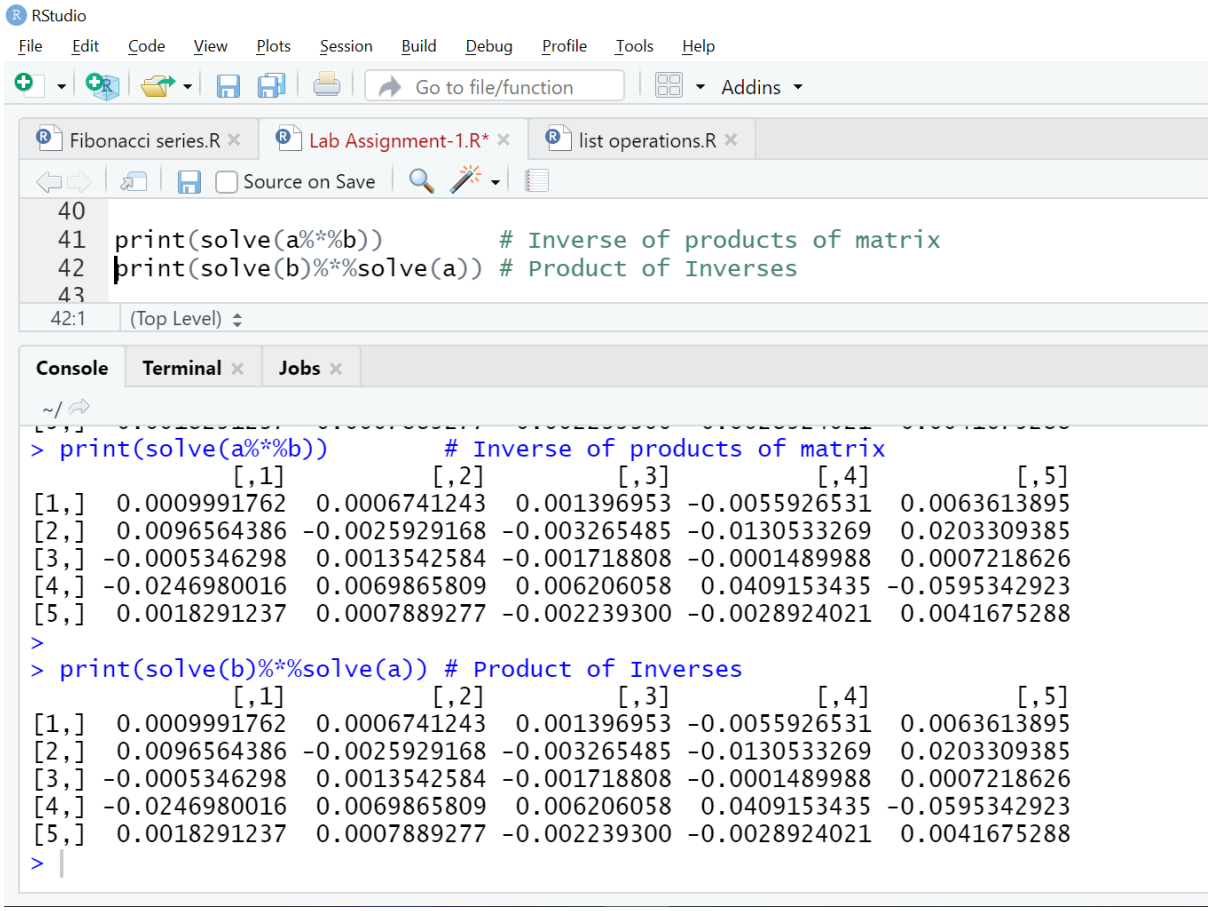


i)Eigen values and eigen vectors of A and B





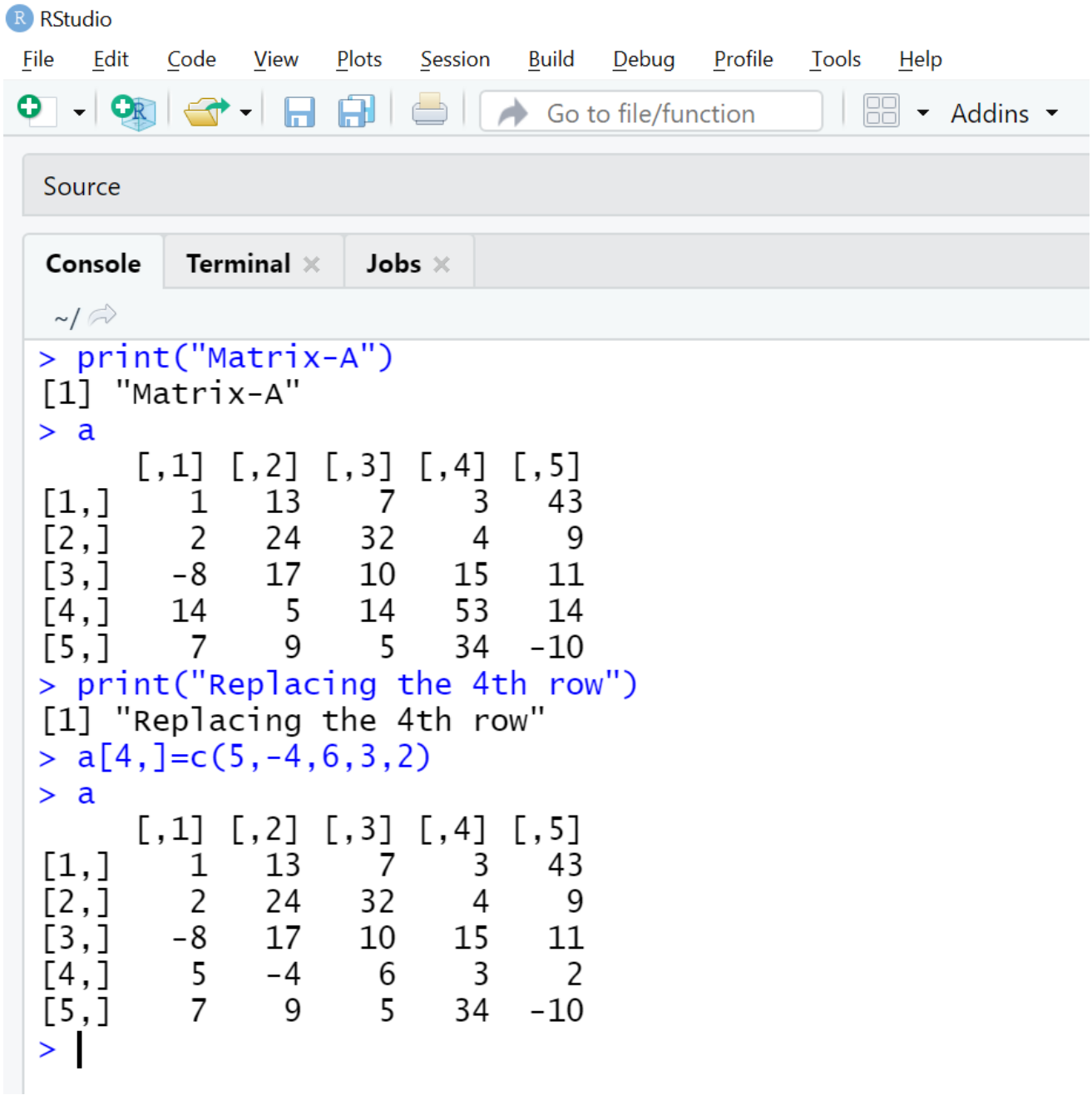
ii) Check whether (AB)^-1 = B^-1 * A^-1

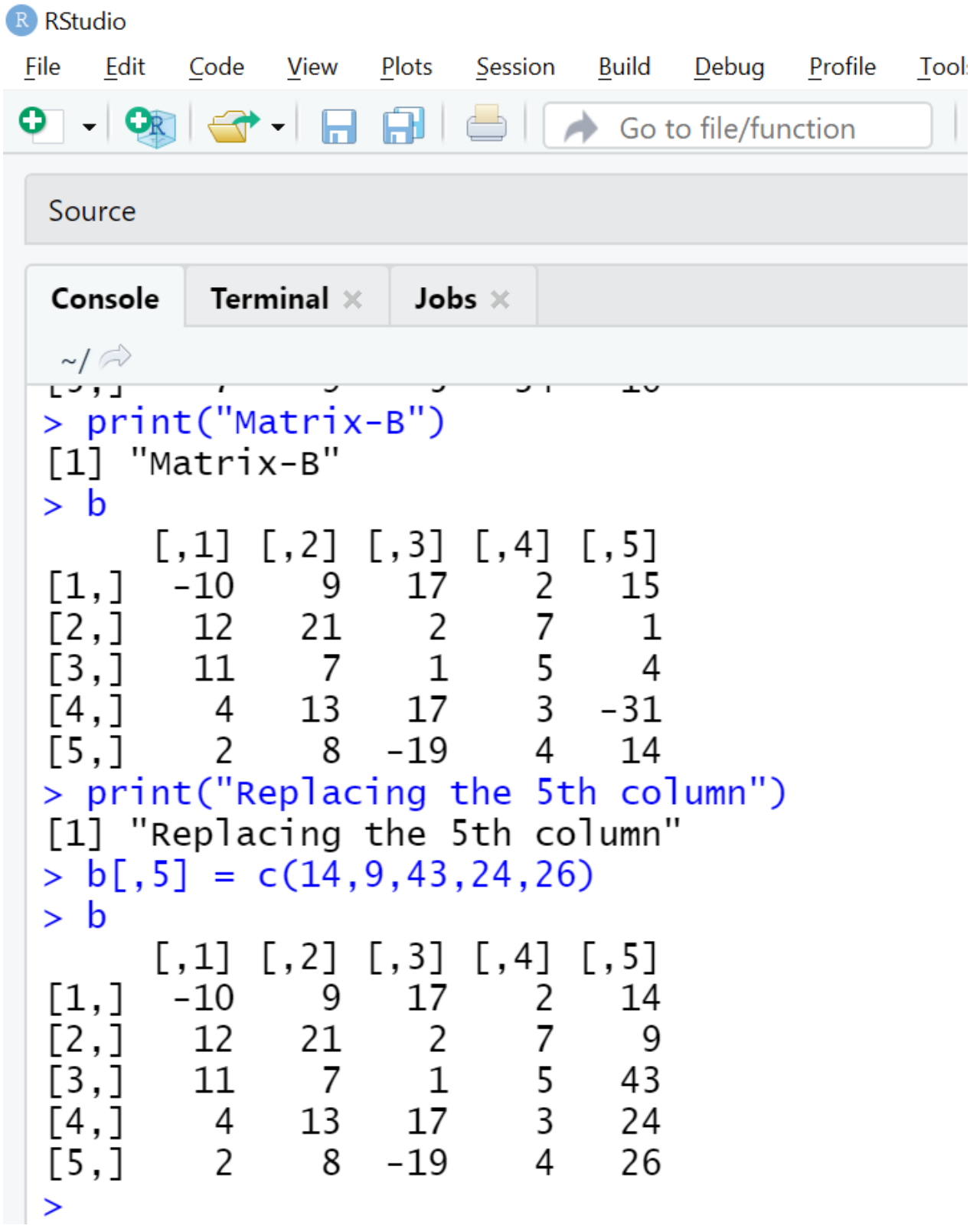


iii) Dimension of 4*A^5 - 5A^3 + A^2

```
> matrix1 = 4*(a^5)-5*(a^3) + (a^2)
> print(dim(matrix1))
[1] 5 5
>
```

iv) Replacing 4th row of A by (5 -4 6 3 2) and 5th column of B by (14 9 43 24 26)




RStudio
File Edit Code View Plots Session Build Debug Profile Tool
Go to file/function
Source
Console Terminal Jobs
~/
> print("Matrix-B")
[1] "Matrix-B"
> b
[,1] [,2] [,3] [,4] [,5]
[1,] -10 9 17 2 15
[2,] 12 21 2 7 1
[3,] 11 7 1 5 4
[4,] 4 13 17 3 -31
[5,] 2 8 -19 4 14
> print("Replacing the 5th column")
[1] "Replacing the 5th column"
> b[,5] = c(14,9,43,24,26)
> b
[,1] [,2] [,3] [,4] [,5]
[1,] -10 9 17 2 14
[2,] 12 21 2 7 9
[3,] 11 7 1 5 43
[4,] 4 13 17 3 24
[5,] 2 8 -19 4 26
>