```
 1 D:\Workspace\TUSUR\EP1\venv\Scripts\python.exe D:/
   JetBrains/Toolbox/apps/PyCharm-P/ch-0/222.4345.23/
   plugins/python/helpers/pydev/pydevconsole.py --mode=
   client --host=127.0.0.1 --port=50938
 2
 3 import sys; print('Python %s on %s' % (sys.version,
   sys.platform))
 4 sys.path.extend(['D:\\Workspace\\TUSUR\\EP1'])
 5
 6 PyDev console: starting.
 7
 8 Python 3.9.13 (tags/v3.9.13:6de2ca5, May 17 2022, 16:
   36:42) [MSC v.1929 64 bit (AMD64)] on win32
 9 >>> runfile('D:\\Workspace\\TUSUR\\EP1\\issue-3\\
   issue-3_1.py', wdir='D:\\Workspace\\TUSUR\\EP1\\issue
   -3')
10 A =  [[0.35176404 0.9906888  0.69867903 0.31415864 0.
   95809585]
11  [0.45236573 0.11952064 0.2332605  0.6422512  0.
   55597309]
12  [0.61076715 0.74646294 0.07005885 0.95734044 0.
   67418547]
13  [0.03398863 0.34809286 0.31465431 0.9756098  0.
   13597812]
14  [0.452261   0.36793149 0.34892552 0.4554004  0.
   47516254]]
15 B =  [[0.84457433 0.14229803 0.89113966 0.33586088 0.
   02620899]
16  [0.91625293 0.90420982 0.47891458 0.40236842 0.
   23209139]
17  [0.33051558 0.63594869 0.14913503 0.4818637  0.
   52373469]
18  [0.01395246 0.97948307 0.452809   0.34512529 0.
   51492684]
19  [0.57494002 0.08752882 0.11830496 0.89337579 0.
   05032296]]
20 C =  [[0.86108651 0.34004385 0.27071735 0.66124321 0.
   82950437]
21  [0.8443045  0.85444154 0.11861613 0.99733198 0.
   56887609]
22  [0.89457637 0.80976019 0.46182151 0.94074042 0.
```

```
22 6026704 ]
23  [0.54902653 0.253574   0.23340463 0.17001329 0.
   92309847]
24  [0.24797329 0.78447326 0.23861816 0.34308394 0.
   88531583]]
25 D =  [[0.98226405 0.33896304 0.68363369 0.34066462 0.
   98166854]
26  [0.42314583 0.92446528 0.61567534 0.76540176 0.
   45524729]
27  [0.83903568 0.57414661 0.43654599 0.11723403 0.
   00671525]
28  [0.61631843 0.16437913 0.10119753 0.91900936 0.
   86517289]
29  [0.99752454 0.42068626 0.26603775 0.98270055 0.
   59106544]]
30 E =  [[0.7465512  0.48519463 0.86809954 0.57749206 0.
   24458864]
31  [0.44151192 0.95803466 0.9683153  0.39215123 0.
   50911779]
32  [0.59140181 0.30396896 0.54821459 0.26885975 0.
   72726791]
33  [0.42564836 0.73586549 0.10739112 0.07624358 0.
   34194281]
34  [0.47462811 0.77484981 0.76887108 0.7874967  0.
   63567501]]
35 G =
36  [[-2.87583441 -2.91015162 -1.90107676 -2.83292549 -2
   .58363516]
37  [ 0.9931334   1.42358721  0.61596443  0.53103398 -0.
   51302337]
38  [-0.98951576 -0.77913539 -0.60770516 -1.3893382  -2.
   02254009]
39  [-0.2239878   0.25610244 -0.03846927 -0.16941412 -0.
   78457223]
40  [-0.55651138  0.02290946 -0.3825489  -0.56047563 -0.
   99253967]]
41 G + X1 - X2 =
42  [[71.29416559 71.25984838 72.26892324 71.33707451 71
   .58636484]
43  [75.1631334  75.59358721 74.78596443 74.70103398 73.
   65697663]
```

```
 [73.18048424 73.39086461 73.56229484 72.7806618  72.14745991]
 [73.9460122  74.42610244 74.13153073 74.00058588 73.38542777]
 [73.61348862 74.19290946 73.7874511  73.60952437 73.17746033]]
det G =
 2.8157302431618985
Inv G =
 [[ 2.55413019  4.45843947 -2.69066896 -2.43080046 -1.89574501]
 [-1.89990587 -2.09450226  1.88137619 -2.14788095  4.26591339]
 [-1.16567444 -2.43596215  2.78183965  0.68269029  0.16493902]
 [-0.63718598 -0.96592724 -0.46211992  6.90619339 -4.87461669]
 [ 1.17326035  1.06645976 -1.54096185 -3.01238042  2.3326809 ]]
Checking the matrix =
 [[ 1.  0. -0. -0. -0.]
 [ 0.  1. -0.  0.  0.]
 [-0. -0.  1.  0.  0.]
 [-0. -0. -0.  1. -0.]
 [-0.  0.  0. -0.  1.]]
W =
 [3.66997044e+02+0.j         2.99374129e-02+0.40220135j
 2.99374129e-02-0.40220135j 1.00134553e-01+0.j
 4.71040175e-01+0.j        ]
V =
 [[ 0.43588794+0.j         -0.72194751+0.j         -0.72194751-0.j
  -0.34164018+0.j         -0.04579384+0.j        ]
 [ 0.45557724+0.j          0.51144854+0.2796874j   0.51144854-0.2796874j
  -0.20816843+0.j         -0.04475076+0.j        ]
 [ 0.44480036+0.j          0.24016482+0.08092441j  0.24016482-0.08092441j
   0.19039501+0.j         -0.77924876+0.j        ]
 [ 0.45069688+0.j         -0.02714132-0.12094305j -0.
```

```
 72 02714132+0.12094305j
 73    0.78694772+0.j          0.39832913+0.j        ]
 74  [ 0.44886083+0.j         -0.00582491-0.24364203j -0
    .00582491+0.24364203j
 75   -0.42943091+0.j          0.47958895+0.j        ]]
 76 Checking G * v =
 77  [[ 1.59969587e+02+0.j         -2.16132407e-02-0.
    29036826j
 78   -2.16132407e-02+0.29036826j -3.42099872e-02+0.j
 79   -2.15707400e-02+0.j        ]
 80  [ 1.67195500e+02+0.j         -9.71792033e-02+0.
    21407841j
 81   -9.71792033e-02-0.21407841j -2.08448523e-02+0.j
 82   -2.10794076e-02+0.j        ]
 83  [ 1.63240419e+02+0.j         -2.53579947e-02+0.
    09901728j
 84   -2.53579947e-02-0.09901728j  1.90651188e-02+0.j
 85   -3.67057473e-01+0.j        ]
 86  [ 1.65404422e+02+0.j          4.78309162e-02-0.
    014537j
 87    4.78309162e-02+0.014537j    7.88006588e-02+0.j
 88    1.87629025e-01+0.j        ]
 89  [ 1.64730596e+02+0.j          9.78187686e-02-0.
    0096368j
 90    9.78187686e-02+0.0096368j  -4.30008728e-02+0.j
 91    2.25905663e-01+0.j        ]]
 92 Checking w * v =
 93  [[ 1.59969587e+02+0.j         -2.16132407e-02-0.
    29036826j
 94   -2.16132407e-02+0.29036826j -3.42099872e-02+0.j
 95   -2.15707400e-02+0.j        ]
 96  [ 1.67195500e+02+0.j         -9.71792033e-02+0.
    21407841j
 97   -9.71792033e-02-0.21407841j -2.08448523e-02+0.j
 98   -2.10794076e-02+0.j        ]
 99  [ 1.63240419e+02+0.j         -2.53579947e-02+0.
    09901728j
100   -2.53579947e-02-0.09901728j  1.90651188e-02+0.j
101   -3.67057473e-01+0.j        ]
102  [ 1.65404422e+02+0.j          4.78309162e-02-0.
    014537j
```

```
    4.78309162e-02+0.014537j    7.88006588e-02+0.j
    1.87629025e-01+0.j        ]
 [ 1.64730596e+02+0.j          9.78187686e-02-0.
0096368j
    9.78187686e-02+0.0096368j  -4.30008728e-02+0.j
    2.25905663e-01+0.j        ]]
rank = 5
A→ =  [73.61348862 74.19290946 73.7874511  73.
60952437 73.17746033]
B→ =  [72.26892324 74.78596443 73.56229484 74.
13153073 73.7874511 ]
|A| =  164.74654545727927
|B| =  164.8248183718993
Ort A = [0.44682872 0.45034577 0.44788466 0.44680466
 0.44418206]
Ort B = [0.43845899 0.45373    0.44630594 0.44975952
 0.44767197]
Checking ort A =  1.0
Checking ort B =  1.0
Сумма векторов =  736.9169982200067
Число положительных значений в A =  5
Число отрицательных значений в A =  0
Число положительных значений в B =  5
Число отрицательных значений в B =  0
Scalar product of vectors =  27152.895073217805
cos(y) = 0.9999475457604581
sin(y) =  0.010242349712668325
cross product of vectors =  278.1240358360837
multiplication of vector coordinates =
 [5319.96755863 5548.58828761 5427.97423321 5456.
78671753 5399.57827624]
```