

Ví dụ test lặp Newton

Ví dụ 1: Ma trận không khả nghịch

Input:

```
input.txt
1  1 2 3
2  0 -2 -1
3  2 0 4
```

```
Nhap size cua ma tran A : 3
Nhap epxilon : 0.000000001
```

Output:

```
Det A : -0.000000
Khong co ma tran Nghich dao !
```

Ví dụ 2: Ma trận không chéo trội

Input:

```
input.txt
1  1 2 3 8
2  2 4 0 6
3  1 2 7 1
4  3 5 0 0
```

```
Nhap size cua ma tran A : 4
Nhap epxilon : 0.000000001
```

Output:

```

Det A : -82.000000
Ma tran A :
  1.0000000000000000  2.0000000000000000  3.0000000000000000  8.0000000000000000
  2.0000000000000000  4.0000000000000000  0.0000000000000000  6.0000000000000000
  1.0000000000000000  2.0000000000000000  7.0000000000000000  1.0000000000000000
  3.0000000000000000  5.0000000000000000  0.0000000000000000  0.0000000000000000

Ma tran xap xi Xo :
  0.193290948867798  -0.305716902017593  -0.154269456863403  0.368030071258545
 -0.180624440312386  0.263369917869568  0.118334963917732  -0.065406419336796
  0.021232327446342  -0.051329985260963  0.132922604680061  -0.018981847912073
  0.113730899989605  0.021640496328473  -0.050468575209379  -0.039277110248804

Ma tran nghich dao cua A :
  2.560975551605225  -3.231706857681274  -1.097561240196228  2.0000000000000000
 -1.536585330963135  1.939024209976196  0.658536672592163  -1.0000000000000000
  0.048780489712954  -0.085365854203701  0.121951207518578  0.0000000000000000
  0.170731708407402  -0.048780489712954  -0.073170728981495  0.0000000000000000

So lan lap : 9

Kiem tra nhan nguoc :
  1.0000000000000000  0.000000089406967  -0.000000119209290  0.0000000000000000
  0.000000029802322  1.000000238418579  -0.000000163912773  0.0000000000000000
  0.000000029802322  0.000000093132257  0.999999821186066  0.0000000000000000
  0.0000000000000000  0.000000238418579  -0.000000238418579  1.0000000000000000

```

Ví dụ 3: Ma trận chéo trội hàng

Input:

```

input.txt
1  15  1  4 -8
2  2 16  9  3
3  1 -9 12  1
4  1  0  5 23

Nhap size cua ma tran A : 4
Nhap epxilon : 0.000000001

```

Output:

```
Det A : 88505.000000
Ma tran A :
15.000000000000000 1.000000000000000 4.000000000000000 -8.000000000000000
2.000000000000000 16.000000000000000 9.000000000000000 3.000000000000000
1.000000000000000 -9.000000000000000 12.000000000000000 1.000000000000000
1.000000000000000 0.000000000000000 5.000000000000000 23.000000000000000

Ma tran xap xi Xo :
0.052329681813717 -0.007870545610785 -0.009874043986201 0.021302876994014
-0.001919061294757 0.043582588434219 -0.027417980134487 -0.005567754153162
0.004008047282696 0.027069270610809 0.047494482249022 -0.005115204956383
-0.007506671361625 -0.002767329104245 -0.006535542197526 0.041900202631950

Ma tran nghich dao cua A :
0.068515896797180 -0.016484942287207 -0.021693689748645 0.026925032958388
-0.003649510676041 0.045568045228720 -0.030506754294038 -0.005886673461646
-0.008349809795618 0.036144848912954 0.063329756259918 -0.010372295975685
-0.001163776032627 -0.007140839006752 -0.012824134901166 0.044562455266714

So lan lap : 5

Kiem tra nhan nguoc :
0.999999940395355 0.000000026077032 -0.000000014901161 0.000000000000000
0.000000010244548 1.000000000000000 -0.000000050291419 -0.000000011175871
-0.000000002793968 -0.000000008847564 1.000000000000000 -0.000000003725290
-0.000000000931323 0.000000005122274 0.00000001862645 1.000000000000000
```

Ví dụ 4: Ma trận chéo trội cột

Input:

```
input.txt
1 3 3.0001 0
2 2 7.1 0.0001
3 0 4 0.001

Nhap size cua ma tran A : 3
Nhap epxilon : 0.0000000001
```

Output:

Det A : 0.014100

Ma tran A :

3.00000000000000	3.00010000000000	0.00000000000000
2.00000000000000	7.10000000000000	0.00010000000000
0.00000000000000	4.00000000000000	0.00100000000000

Ma tran xap xi Xo :

0.428360939025879	-0.143091574311256	-0.061982817947865
-0.103499174118042	0.155699387192726	0.046910997480154
124.714172363281250	-192.273071289062500	297.956695556640620

Ma tran nghich dao cua A :

0.475184023380280	-0.212776064872742	0.021277608349919
-0.141845986247063	0.212768971920013	-0.021276898682117
567.383972167968750	-851.075866699218750	1085.107666015625000

So lan lap : 8

Kiem tra nhan nguoc :

1.00000000000000	-0.000000001960993	0.000000003176182
-0.000000057631730	1.00000000000000	0.000000004148483
0.000000027179718	0.000000020980835	1.000000119209290