

```

clear all; clc

A = [0.8222 - 0.6889i -0.1472 - 1.2972i -0.8833 - 1.1389i;
      0.4889 - 0.3556i  2.0611 - 0.8389i  0.3667 - 0.0556i;
      0.1556 + 0.9778i  0.0194 + 1.8694i  2.1167 + 1.5278i];

eig(A)

B = [1,0,0]';

rank(ctrb(A,B))

[P,K,L,info] = icare(A,B,1,1,0,eye(3),0)

```

```
ans =
```

```

2.0000 + 1.0000i
1.0000 + 0.0000i
1.9999 - 1.0000i

```

```
ans =
```

```
3
```

```
P =
```

```

1.0e+02 *

0.1050 + 0.0000i -0.0262 + 0.1364i  0.0625 - 0.4242i
-0.0262 - 0.1364i  2.5760 + 0.0000i -0.5047 + 2.2294i
0.0625 + 0.4242i -0.5047 - 2.2294i  4.2848 + 0.0000i

```

```
K =
```

```
10.5029 + 0.0000i -2.6221 +13.6351i  6.2500 -42.4223i
```

```
L =
```

```

-1.4843 - 0.1289i
-1.9182 + 1.1296i
-2.1004 - 1.0008i

```

```
info =
```

```
struct with fields:
```

```

Sx: [3×1 double]
Sr: 2
U: [3×3 double]
V: [3×3 double]

```

W: [0.0593 - 0.1747i -0.3165 + 0.1930i -0.1659 + 0.0580i]
Report: 0

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