# sf_example

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# given xdot = Ax + bu

```
A = [1 2; 3, 1]
B = [ 0; 1]
```

```
A =

     1     2
     3     1


B =

     0
     1
```

# eigenvalues of A

```
eig(A)
```

```
ans =

    3.4495
   -1.4495
```

# desired poles

```
p1 = -1-2*j
p2 = conj(p1)
```

```
p1 =
```

```
  -1.0000 - 2.0000i


p2 =

  -1.0000 + 2.0000i
```

# compute k

```
k = acker(A, B, [p1;p2])


k =

     7     4
```

# check ce

```
eig(A-B*k)


ans =

  -1.0000 + 2.0000i
  -1.0000 - 2.0000i
```

# more commands

```
% characteristic coefficients
C_coeff = poly(A-B*k)

% roots
roots(C_coeff)


C_coeff =

     1     2     5


ans =

  -1.0000 + 2.0000i
  -1.0000 - 2.0000i
```

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