

```
u = [1 -1 1; 0 -1 2; 0 0 1]
```

```
u = 3x3
    1   -1    1
    0   -1    2
    0    0    1
```

```
inv(u)
```

```
ans = 3x3
    1   -1    1
    0   -1    2
    0    0    1
```

```
u * u
```

```
ans = 3x3
    1    0    0
    0    1    0
    0    0    1
```

```
A = [-1 0 -1; -1 -1 0; 0 -1 -1]
```

```
A = 3x3
   -1    0   -1
   -1   -1    0
    0   -1   -1
```

```
B = [1; 0; 0]
```

```
B = 3x1
    1
    0
    0
```

```
C = [0 0 1]
```

```
C = 1x3
    0    0    1
```

```
D = [0]
```

```
D = 0
```

```
K = [25 -166.9 1004.1]
```

```
K = 1x3
103 ×
    0.0250   -0.1669    1.0041
```

```
N = 1 / ((C - D * K) * inv(-A + B * K) * B + D)
```

```
N = 1.1980e+03
```

```
sys = ss(A - B * K, N * B, C - D * K, N * D)
```

```
sys =
```

```
A =
```

| | x1 | x2 | x3 |
|----|-----|-------|-------|
| x1 | -26 | 166.9 | -1005 |
| x2 | -1 | -1 | 0 |
| x3 | 0 | -1 | -1 |

```
B =
```

| | u1 |
|----|------|
| x1 | 1198 |
| x2 | 0 |
| x3 | 0 |

```
C =
```

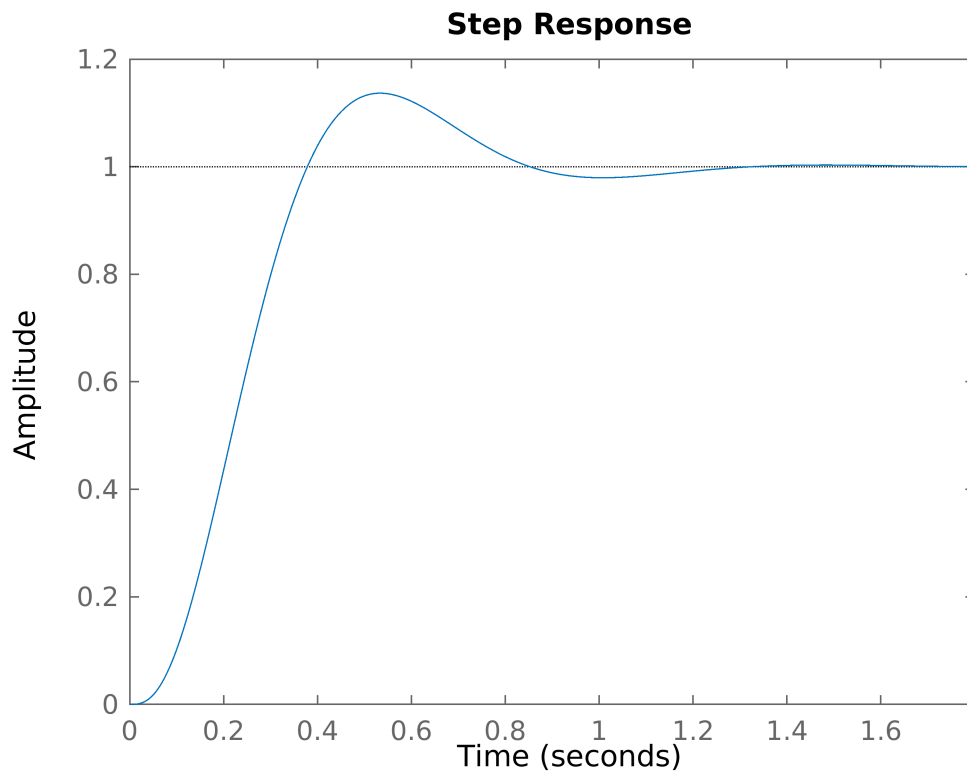
| | x1 | x2 | x3 |
|----|----|----|----|
| y1 | 0 | 0 | 1 |

```
D =
```

| | u1 |
|----|----|
| y1 | 0 |

Continuous-time state-space model.

```
step(sys)
```



```
stepinfo(sys)
```

```
ans = struct with fields:
    RiseTime: 0.2360
    TransientTime: 1.0379
    SettlingTime: 1.0379
    SettlingMin: 0.9029
    SettlingMax: 1.1367
    Overshoot: 13.6740
    Undershoot: 0
    Peak: 1.1367
    PeakTime: 0.5342
```

```
syms s
```

```
C * inv(s * eye(3) - A) * B + D
```

```
ans =
```

$$\frac{1}{s^3 + 3s^2 + 3s + 2}$$