```
G = tf([15000], [1, 50, 875, 6250, 15000])
```

```
G =

                  15000
  ---------------------------------------
  s^4 + 50 s^3 + 875 s^2 + 6250 s + 15000

Continuous-time transfer function.
```

```
Kp = 3.5
```

```
Kp = 3.5000
```

```
Ki = 5
```

```
Ki = 5
```

```
Kd = 0.5
```

```
Kd = 0.5000
```

```
C = Kp + tf([Ki], [1, 0]) + tf([Kd, 0], [1])
```

```
C =

  0.5 s^2 + 3.5 s + 5
  -------------------
           s

Continuous-time transfer function.
```

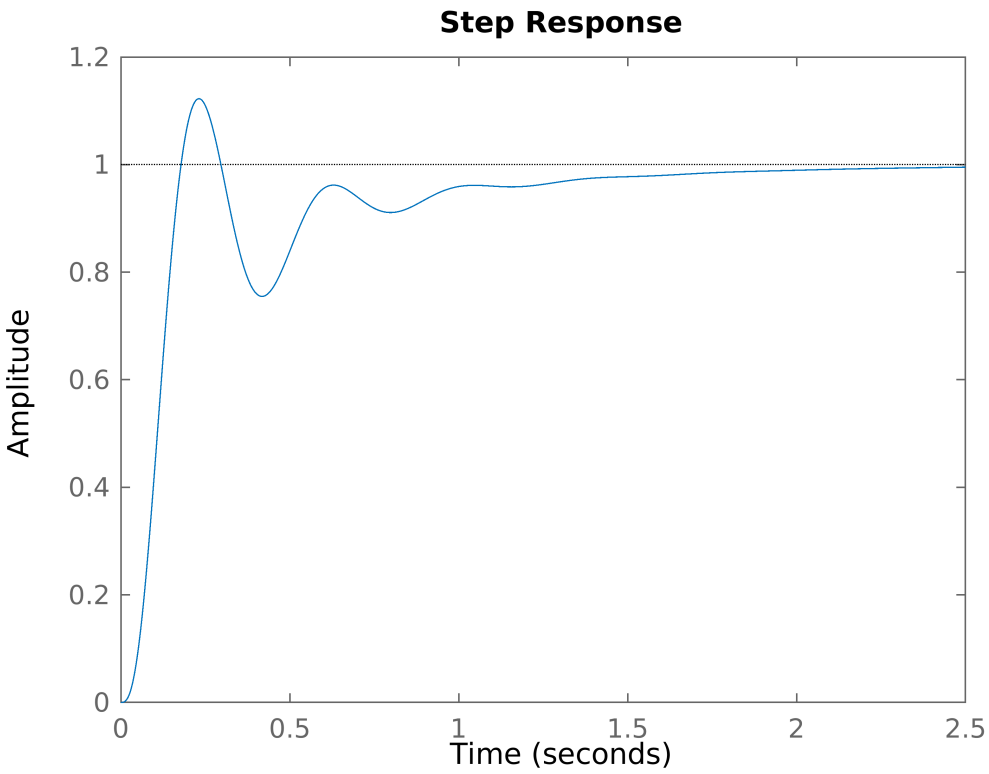
```
CL = feedback(C * G, 1)
```

```
CL =

               7500 s^2 + 52500 s + 75000
  -------------------------------------------------
  s^5 + 50 s^4 + 875 s^3 + 13750 s^2 + 67500 s + 75000

Continuous-time transfer function.
```

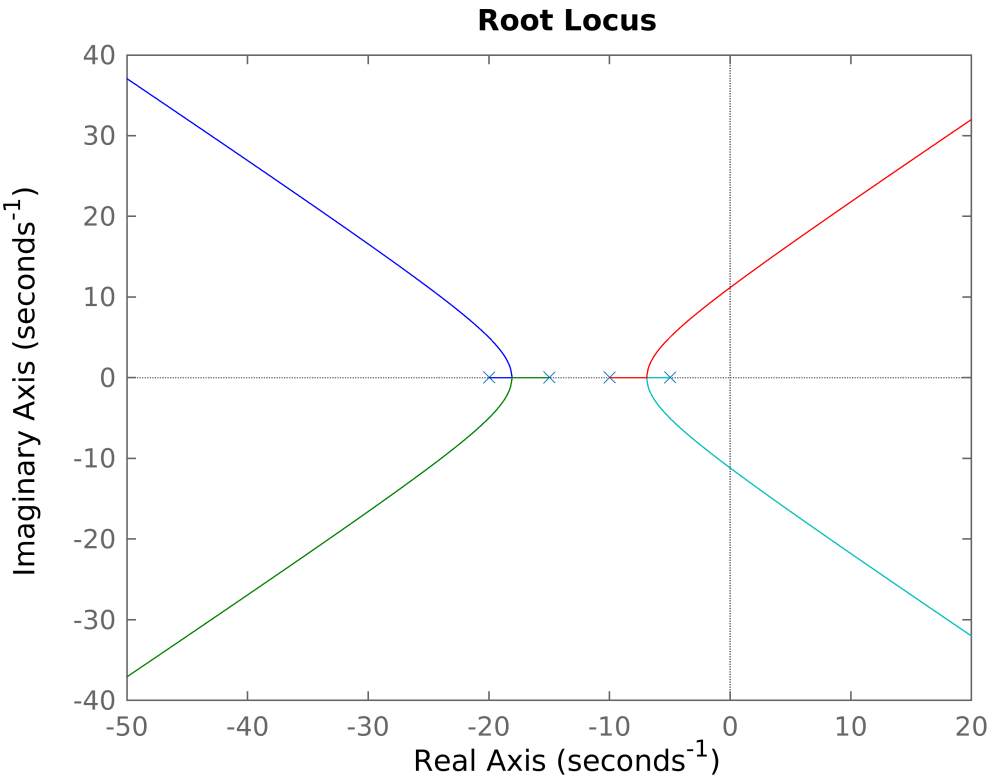
```
step(CL)
```




```
stepinfo(CL)
```

```
ans = struct with fields:
          RiseTime: 0.1084
     TransientTime: 1.6054
      SettlingTime: 1.6054
       SettlingMin: 0.7549
       SettlingMax: 1.1226
         Overshoot: 12.2558
        Undershoot: 0
              Peak: 1.1226
          PeakTime: 0.2314
```

```
rlocus(G)
```


Root Locus
Imaginary Axis (seconds-1)
Real Axis (seconds-1)
40
30
20
10
0
-10
-20
-30
-40
-50
-40
-30
-20
-10
0
10
20