

```
% Effect of addition on closed loop poles
sys = tf([1], [1 3 6])
p = [-1 -5 -10 -20]
for i=1:4
    sys_new = tf([1], [1 -p(i)])*sys
    subplot(2, 2, i)
    step(sys_new)
    stepinfo(sys_new)
end
```

sys =

$$\frac{1}{s^2 + 3s + 6}$$

Continuous-time transfer function.

p =

-1     -5     -10     -20

sys\_new =

$$\frac{1}{s^3 + 4s^2 + 5s + 6}$$

Continuous-time transfer function.

ans =

struct with fields:

```

    RiseTime: 2.0388
    SettlingTime: 4.3619
    SettlingMin: 0.1501
    SettlingMax: 0.1667
    Overshoot: 0
    Undershoot: 0
    Peak: 0.1667
    PeakTime: 12.8484
```

sys\_new =

$$\frac{1}{s^3 + 4s^2 + 5s + 6}$$

$$s^3 + 8 s^2 + 21 s + 30$$

Continuous-time transfer function.

ans =

struct with fields:

```

RiseTime: 0.8705
SettlingTime: 2.6518
SettlingMin: 0.0301
SettlingMax: 0.0358
Overshoot: 7.4106
Undershoot: 0
Peak: 0.0358
PeakTime: 1.8789

```

sys\_new =

$$\frac{1}{s^3 + 13 s^2 + 36 s + 60}$$

Continuous-time transfer function.

ans =

struct with fields:

```

RiseTime: 0.7990
SettlingTime: 2.5417
SettlingMin: 0.0152
SettlingMax: 0.0181
Overshoot: 8.4569
Undershoot: 0
Peak: 0.0181
PeakTime: 1.7500

```

sys\_new =

$$\frac{1}{s^3 + 23 s^2 + 66 s + 120}$$

Continuous-time transfer function.

ans =

struct with fields: