

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

sys =

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

Continuous-time transfer function.

z =

-1    -5    -10    -20

sys\_new =

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

Continuous-time transfer function.

ans =

struct with fields:

```

    RiseTime: 0.1638
    SettlingTime: 3.0252
    SettlingMin: 0.1508
    SettlingMax: 0.2867
    Overshoot: 72.0403
    Undershoot: 0
    Peak: 0.2867
    PeakTime: 0.6754
```

sys\_new =

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

$$s^2 + 3s + 6$$

Continuous-time transfer function.

ans =

struct with fields:

```

    RiseTime: 0.6366
    SettlingTime: 2.2140
    SettlingMin: 0.7514
    SettlingMax: 0.9198
    Overshoot: 10.3779
    Undershoot: 0
    Peak: 0.9198
    PeakTime: 1.3508

```

sys\_new =

$$\frac{s + 10}{s^2 + 3s + 6}$$

Continuous-time transfer function.

ans =

struct with fields:

```

    RiseTime: 0.7398
    SettlingTime: 2.3284
    SettlingMin: 1.5323
    SettlingMax: 1.8183
    Overshoot: 9.0973
    Undershoot: 0
    Peak: 1.8183
    PeakTime: 1.5044

```

sys\_new =

$$\frac{s + 20}{s^2 + 3s + 6}$$

Continuous-time transfer function.

ans =

struct with fields: