
```
% 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 =
```

```
      1
-----
s^2 + 3 s + 6
```

```
Continuous-time transfer function.
```

```
z =
```

```
    -1    -5   -10   -20
```

```
sys_new =
```

```
      s + 1
-----
s^2 + 3 s + 6
```

```
Continuous-time transfer function.
```

```
ans =
```

```
struct with fields:
```

```
    RiseTime: 0.1658
    SettlingTime: 3.0252
    SettlingMin: 0.1508
    SettlingMax: 0.2867
    Overshoot: 72.0403
    Undershoot: 0
    Peak: 0.2867
    PeakTime: 0.6754
```

```
sys_new =
```

```
      s + 5
-----
```

```
s^2 + 3 s + 6

Continuous-time transfer function.
```

```
ans =
```

```
struct with fields:

    RiseTime: 0.6566
    SettlingTime: 2.2140
    SettlingMin: 0.7514
    SettlingMax: 0.9198
    Overshoot: 10.3779
    Undershoot: 0
    Peak: 0.9198
    PeakTime: 1.3508
```

```
sys_new =
```

```
      s + 10
-----
s^2 + 3 s + 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 =
```

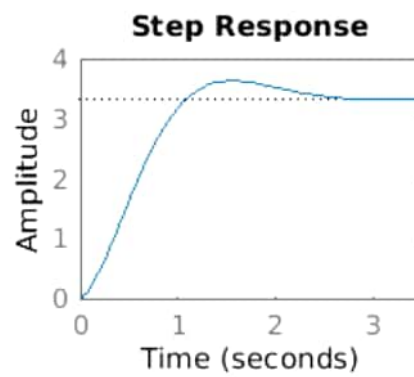
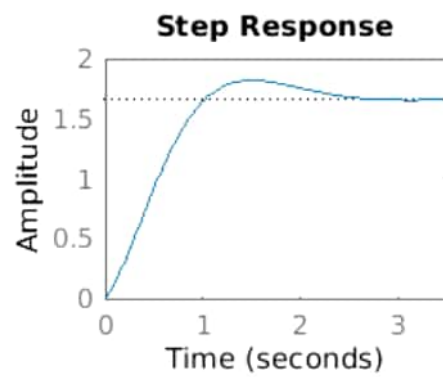
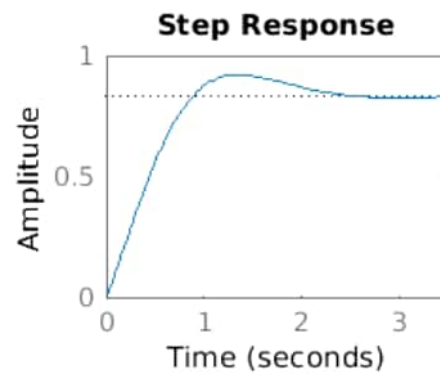
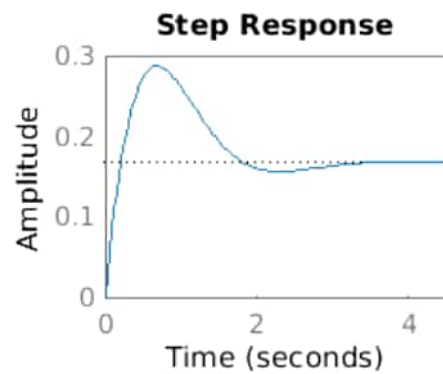
```
      s + 20
-----
s^2 + 3 s + 6

Continuous-time transfer function.
```

```
ans =
```

```
struct with fields:
```

RiseTime: 0.7623
SettlingTime: 2.3834
SettlingMin: 3.0030
SettlingMax: 3.6282
Overshoot: 8.8459
Undershoot: 0
Peak: 3.6282
PeakTime: 1.5658



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