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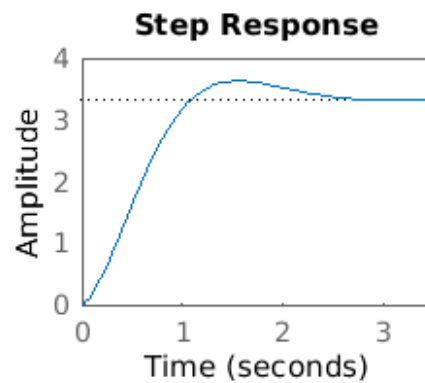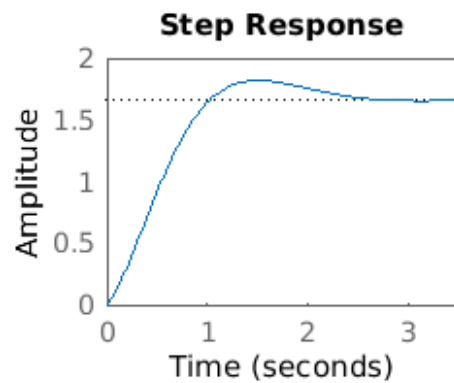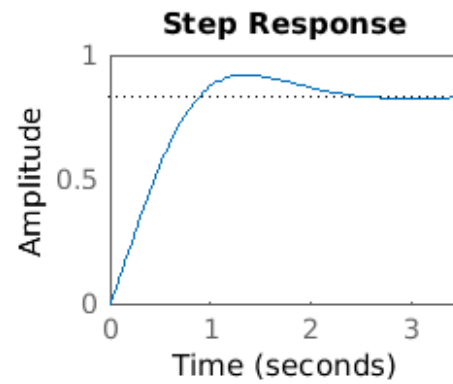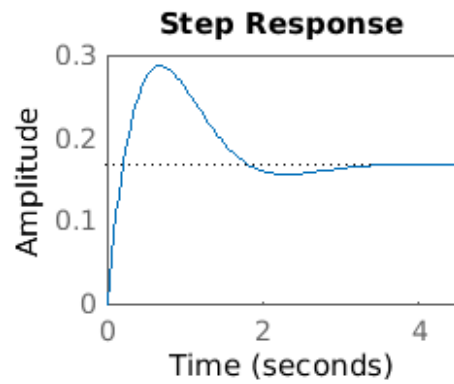
```
        RiseTime: 0.7623
    SettlingTime: 2.3834
     SettlingMin: 3.0030
     SettlingMax: 3.6282
       Overshoot: 8.8459
      Undershoot: 0
            Peak: 3.6282
        PeakTime: 1.5658
```


Published with MATLAB® R2020a