

L008= -0.8/((1+s)\*(1-10\*s))

0.08

L008 = -----

(s+1) (s-0.1)

L01=-1/((1+s)\*(1-10\*s))

0.1

L01 = -----

(s+1) (s-0.1)

L012=-1.2/((1+s)\*(1-10\*s))

0.12

L012 = -----

(s+1) (s-0.1)

nyquist(L008,L01,L012)

daspect([1 1 1])

**Nyquist Diagram**

Imaginary Axis

Real Axis

System: L012  
Gain Margin (dB): -1.58  
At frequency (rad/s): 0  
Closed loop stable? Yes

System: L008  
Gain Margin (dB): 1.94  
At frequency (rad/s): 0  
Closed loop stable? No

System: L012  
Phase Margin (deg): 29.6  
Delay Margin (sec): 7.85  
At frequency (rad/s): 0.0658  
Closed loop stable? Yes

**Bode Diagram**

Magnitude (dB)

Phase (deg)

Frequency (rad/s)

System: L012  
Gain Margin (dB): -1.58  
At frequency (rad/s): 0  
Closed loop stable? Yes

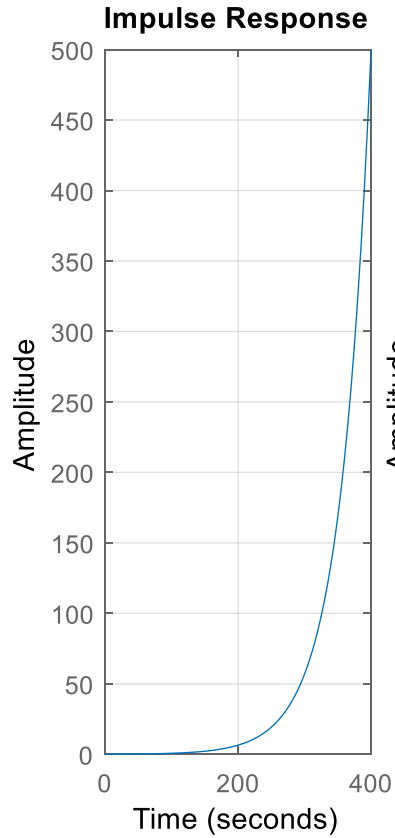
System: L008  
Gain Margin (dB): 1.94  
At frequency (rad/s): 0  
Closed loop stable? No

System: L012  
Phase Margin (deg): 29.6  
Delay Margin (sec): 7.85  
At frequency (rad/s): 0.0658  
Closed loop stable? Yes

F008=feedback(L008,1)

$$F008 = \frac{0.08}{(s-0.0217)(s+0.9217)}$$

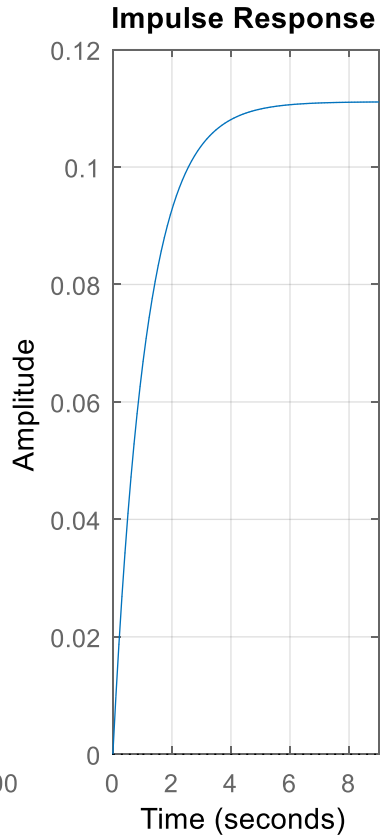
```
>> subplot(1,3,1)
>> impulseplot(F008)
```



F01=feedback(L01,1)

$$F008 = \frac{0.1}{s(s+0.9)}$$

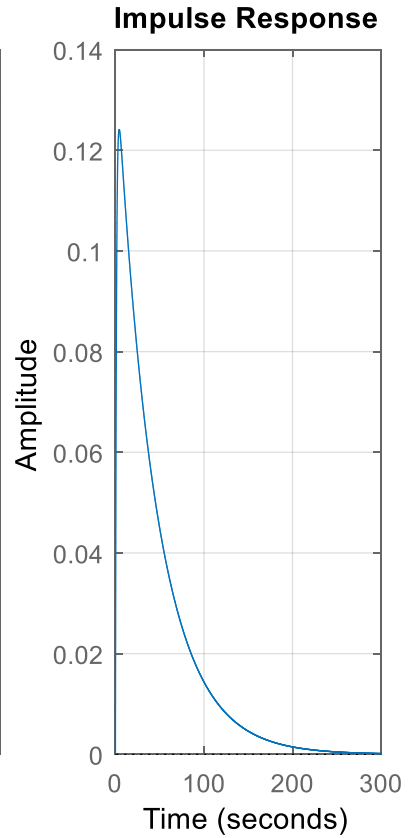
```
>> subplot(1,3,2)
>> impulseplot(F01)
```



F01=feedback(L012,1)

$$F012 = \frac{0.12}{(s+0.0228)(s+0.8772)}$$

```
>> subplot(1,3,3)
>> impulseplot(F012)
```



```
syms s t;
F008 = 0.08/((s-0.0217)*(s+0.9217))
f008 = ilaplace (F008) = (400*exp((217*t)/10000))/4717 - (400*exp(-(9217*t)/10000))/4717
F01= 0.1/(s*(s+0.9))
f01 = 1/9 - exp(-(9*t)/10)/9
F012 = 0.12/((s+0.0228)*(s+0.8772))
f012 = (25*exp(-(57*t)/2500))/178 - (25*exp(-(2193*t)/2500))/178
```