DSL - Dinâmica de Sistemas Lineares (e CONTROLE)

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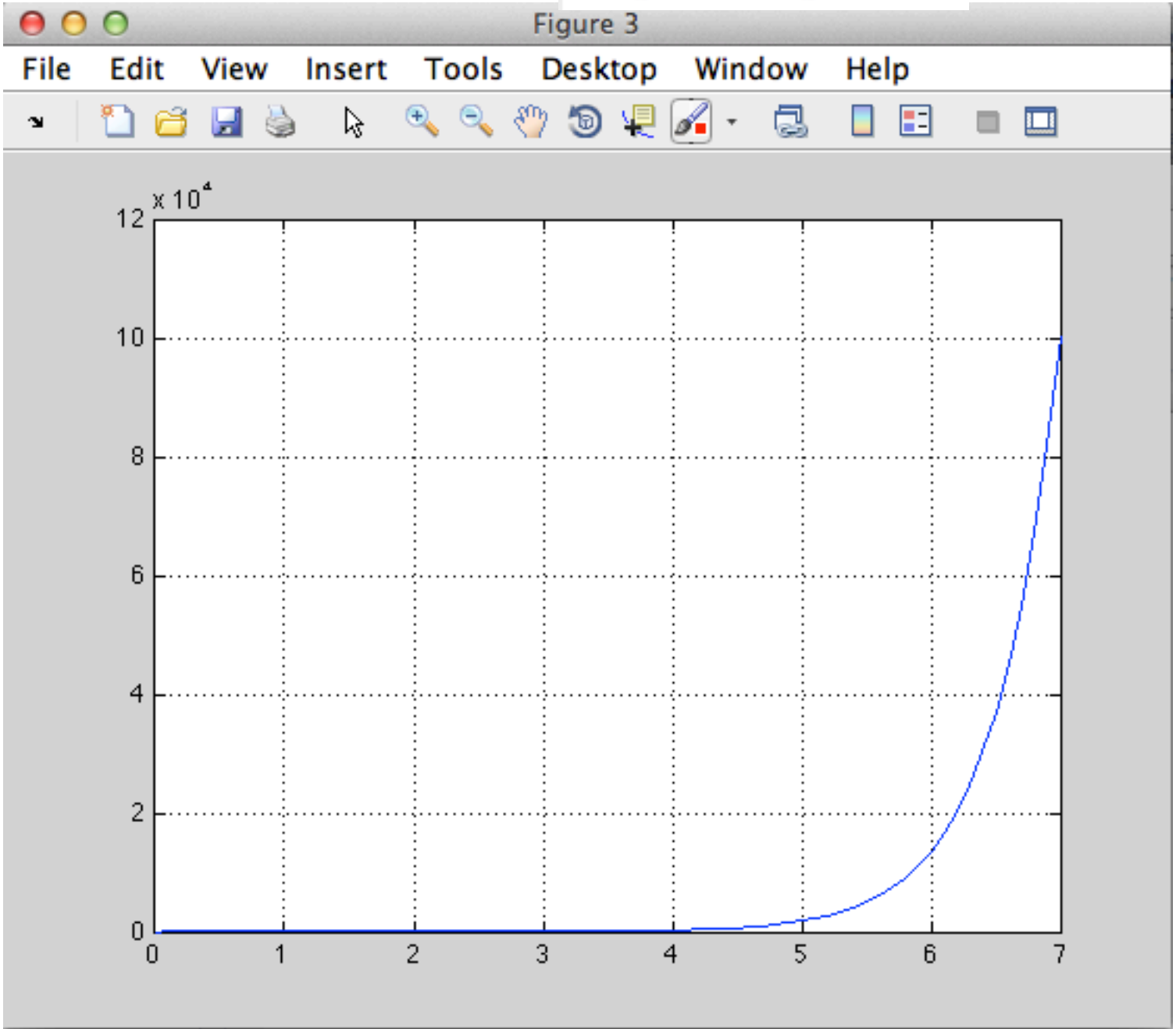
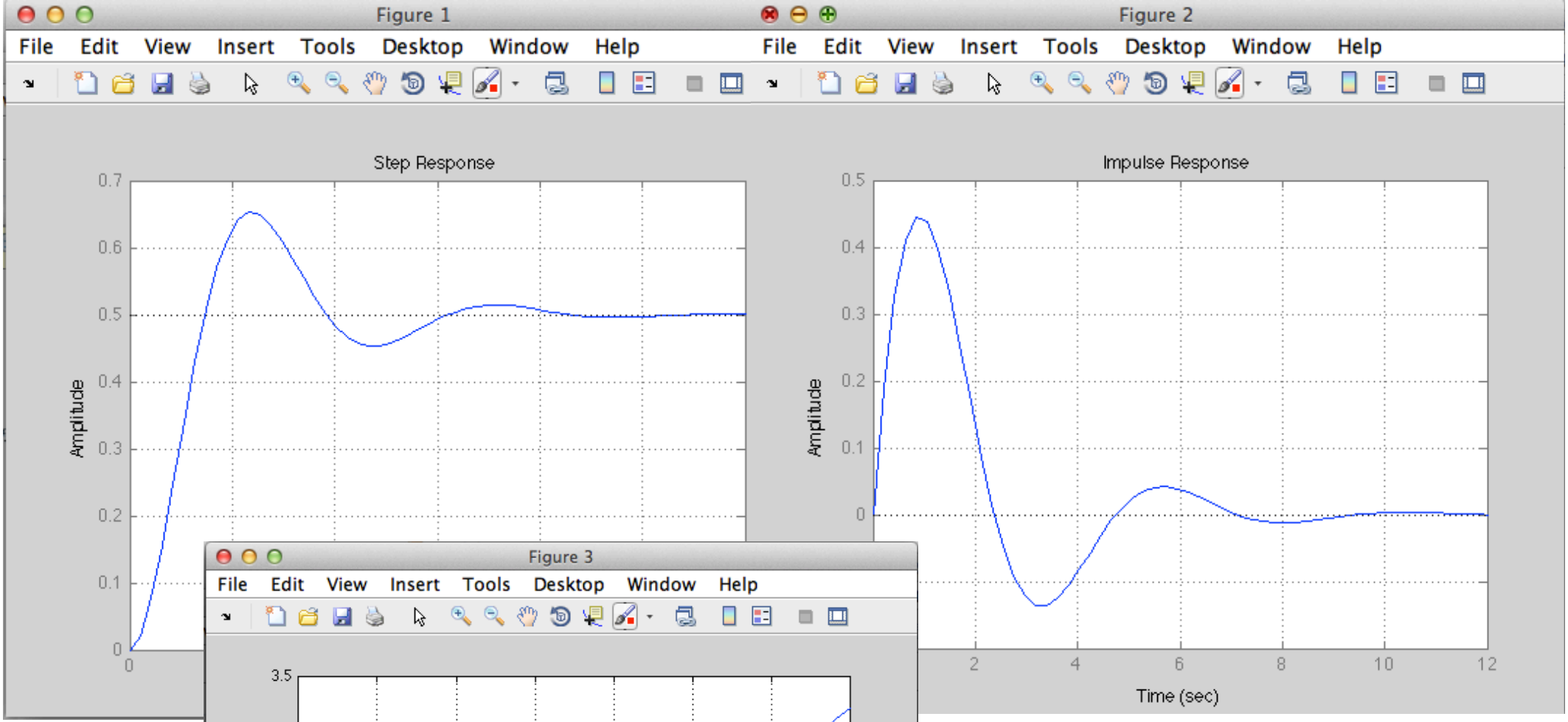
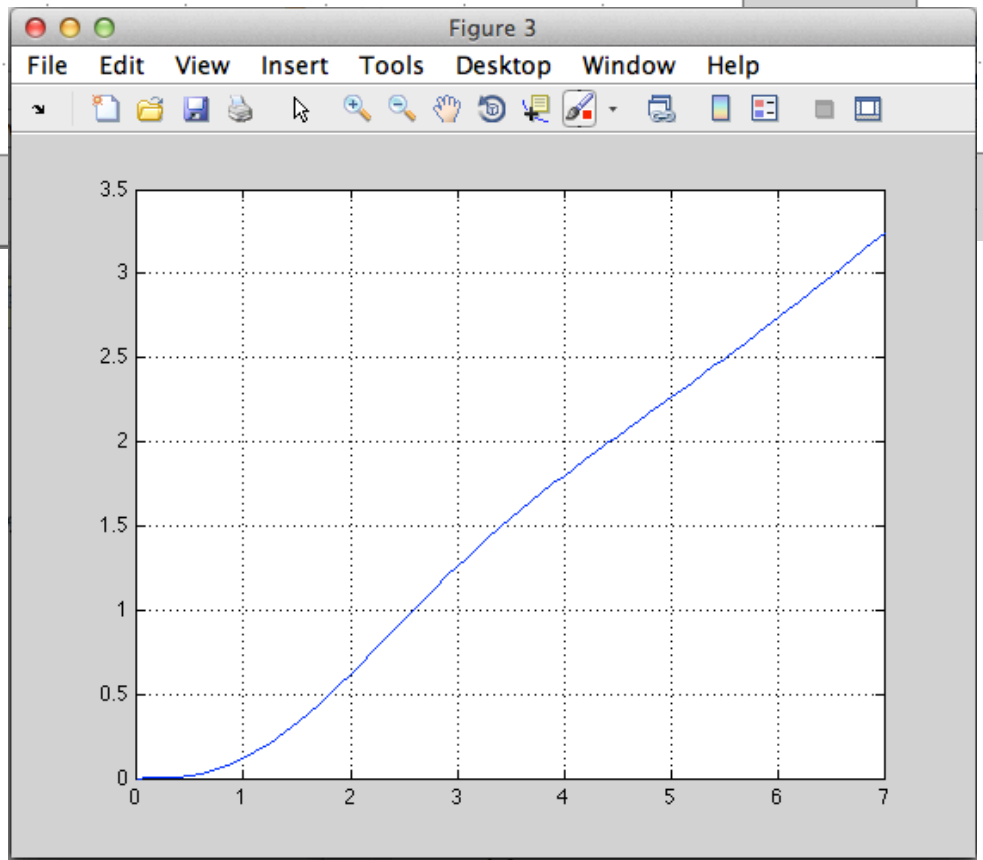
```
%y''-y'-2y
%num = [1];
%den=[1 -1 -2];
%y''+y'+2y
%num = [1];
%den=[1 1 2];
%y''+2y
num = [1];
den=[1 0 2];

printsys(num,den)

t = 0:0.1:10;
r = t;

figure
step(num,den,r)
grid

figure
impulse(num,den,r)
grid

y = lsim(num,den,r,t);
figure
plot(t,y)
grid
```

```
%y''-y'-2y
```

```
num/den =

          1
  ------------
  s^2 - 1 s - 2
```








```
%y''+y'+2y

num/den =

          1
  ----------
  s^2 +  s + 2
```

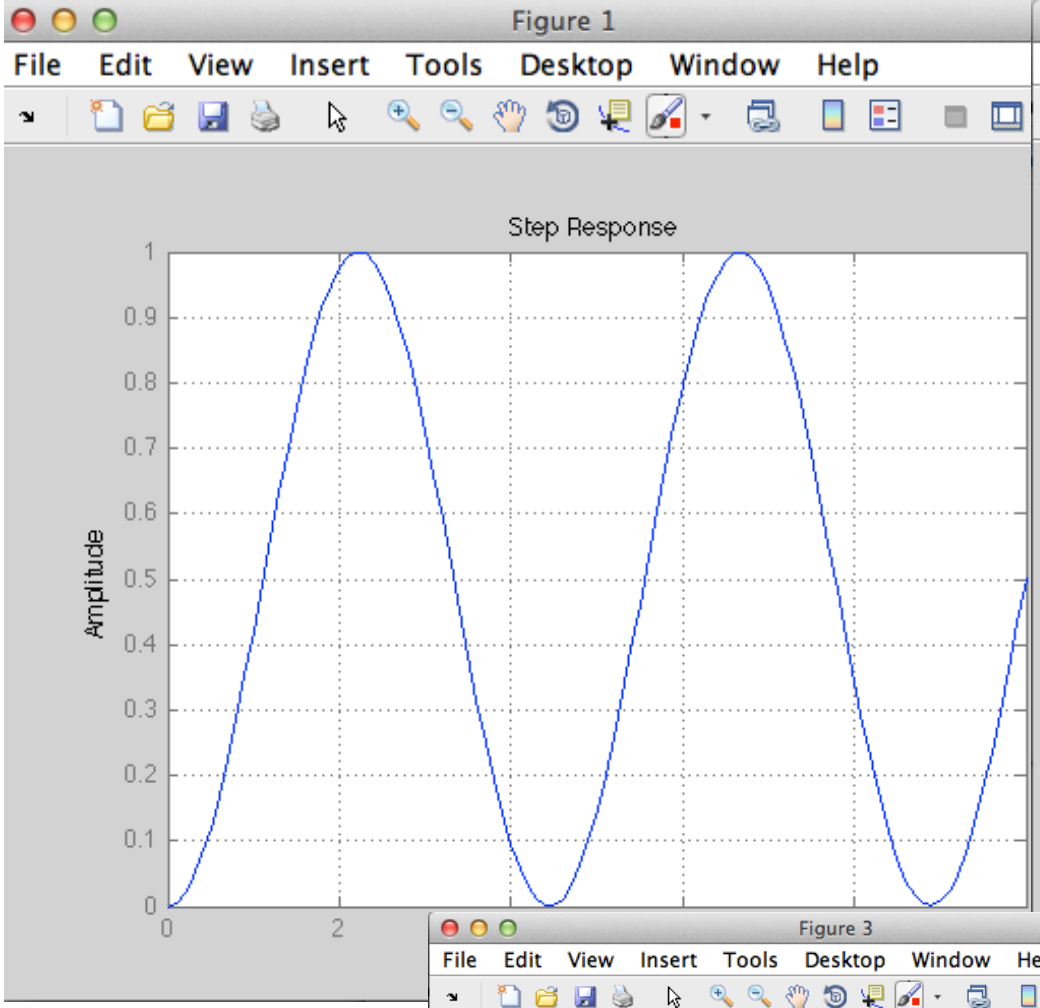


Figure 1
File Edit View Insert Tools Desktop Window Help
Step Response
Amplitude
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
2

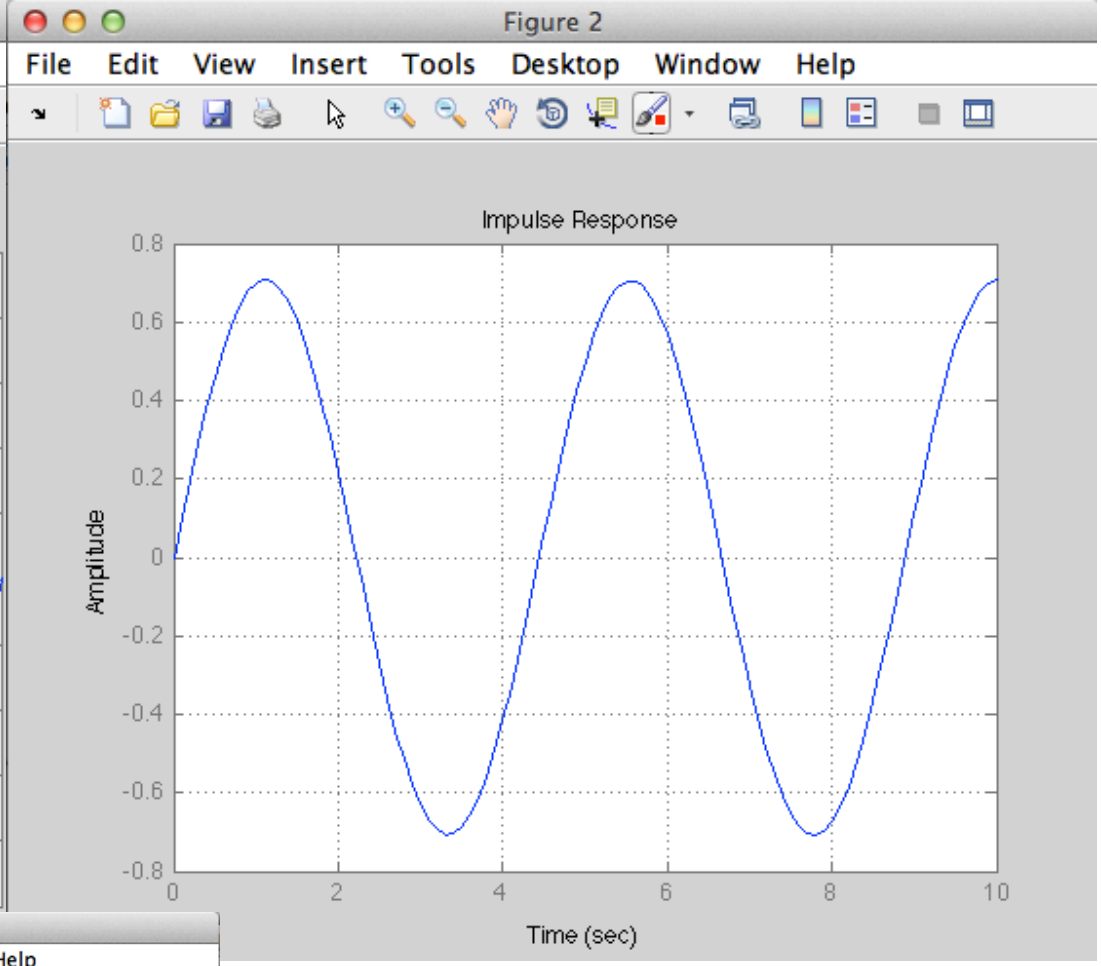


Figure 2
File Edit View Insert Tools Desktop Window Help
Impulse Response
Amplitude
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
0
2
4
6
8
10
Time (sec)

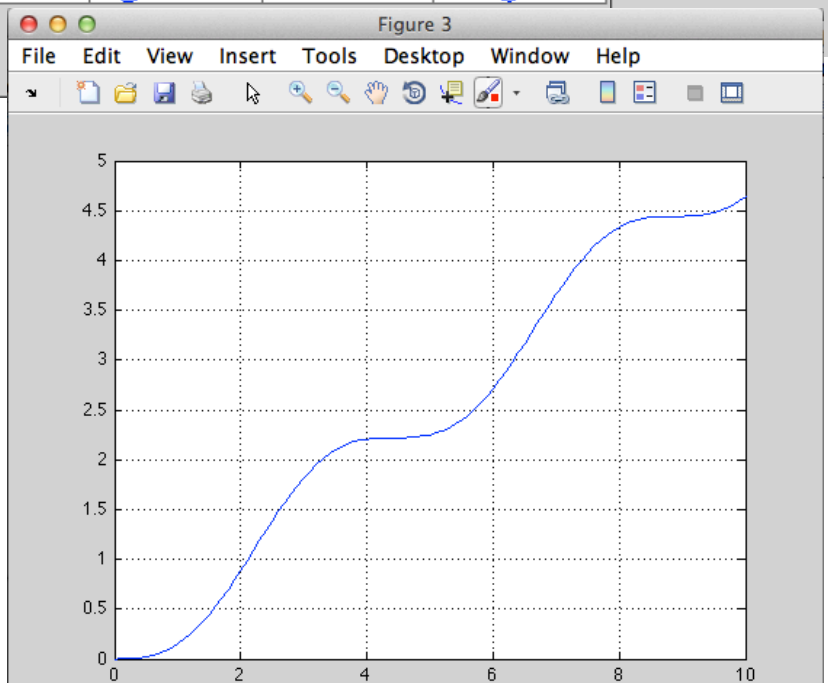


Figure 3
File Edit View Insert Tools Desktop Window Help
5
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
0
2
4
6
8
10

```
%y''+2y

      1
------
s^2 + 2
'
```