Tarea: 3

Universidad Fidélitas sede Heredia

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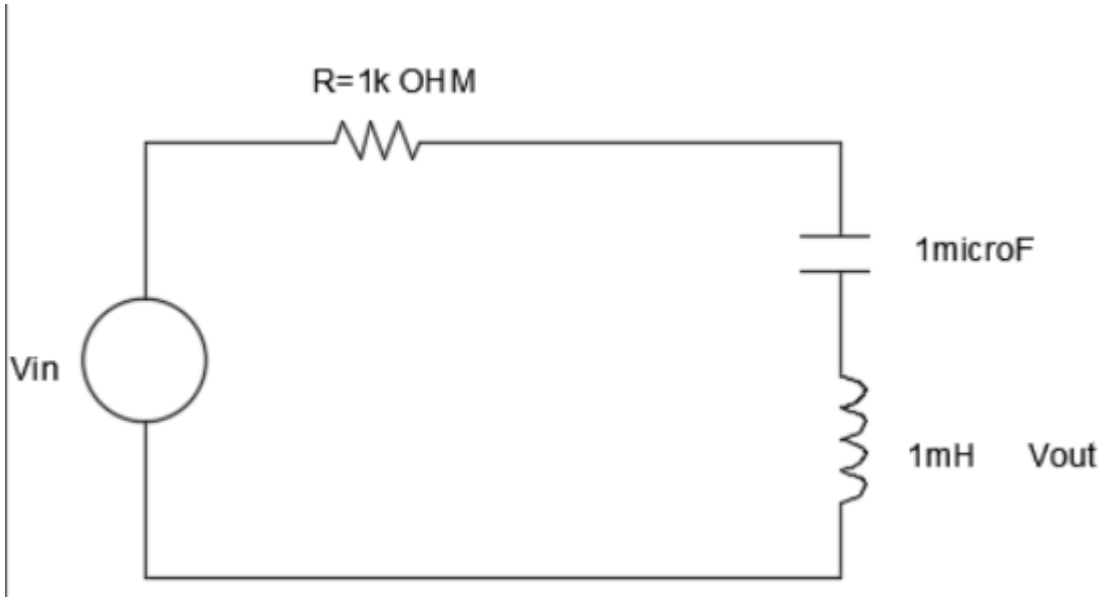
Periodo: segundo cuatrimestre

Año: 2018



$$\frac{Vout(s)}{Vin(s)} = \frac{Ls^2}{Ls^2 + Rs + {}^1/_c}$$

Para el impulso

$$Vout(s) = \frac{(1mH)s^2}{1mHs^2 + (1K\Omega s + {}^{1}/_{1\mu f}} * 1$$

```
>> num=[0.001 0 0]
num =

   0.0010000   0.0000000   0.0000000

>> den=[0.001 1000 1000000]
den =

         0.0010000      1000.0000000   1000000.000000

>> pkg load control
>> [r,p,k]=residue(num,den)
r =

         1.00402
  -1000001.00402

p =

    -1001.00201
  -998998.99799

k =  1
```

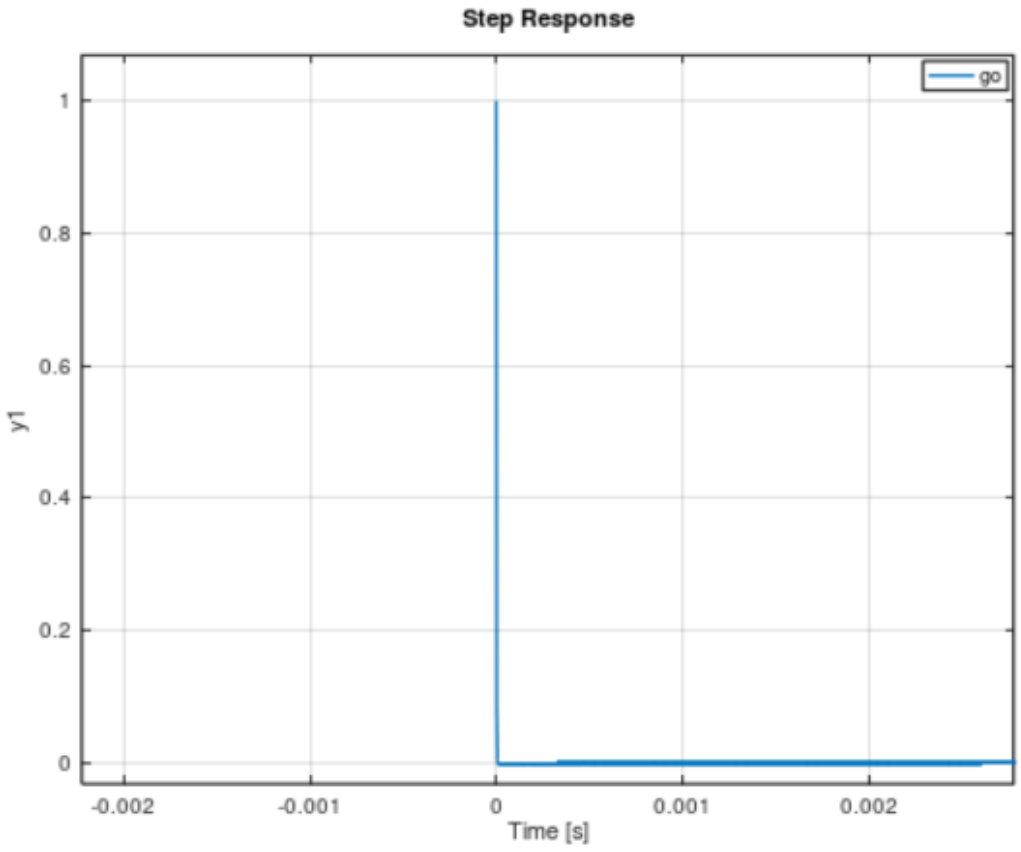
Salida

$$Vout(s) = \frac{1}{s + 1K} + \frac{-1M}{s + 1M} + 1$$

Ecuación para el impuso y su respectiva grafica

Input:

$$e^{-1000\,t} - 1\,000\,000\,e^{-1000\,000\,t} + 1$$



Escalon

$$Vout(s) = \frac{(1mH)s^2}{1mHs^2 + (1K\Omega s + {}^{1}/_{1\mu f}} * \frac{1}{s}$$

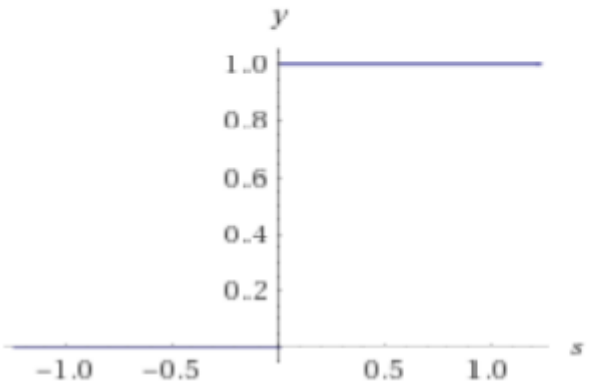
```
>> pkg load control
>> num=[0.001 0]
num =

   0.0010000   0.0000000

>> den=[0.001 1000 1000000]
den =

         0.0010000      1000.0000000   1000000.00000

>> [r,p,k]=residue(num,den)
r =

  -0.0010030
   1.0010030

p =

    -1001.00201
  -998998.99799

k = [](0x0)
>>
```

salida

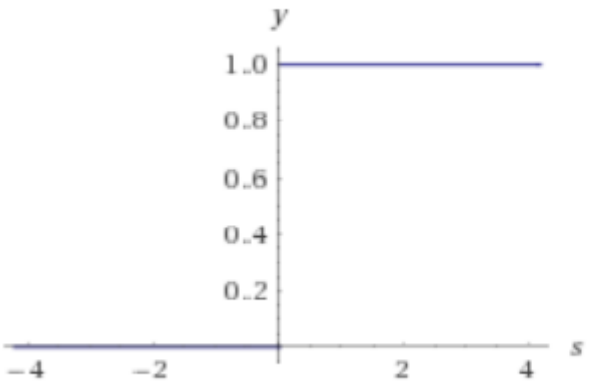
$$Vout(s) = \frac{-1 * 10^{-3}}{s + 1K} + \frac{1}{s + 1M}$$

Grafico ante escalón

Plots:



(s from −1.2 to 1.2)



(s from −4.2 to 4.2)

Rampa

$$Vout(s) = \frac{(1mH)s^2}{1mHs^2 + (1K\Omega s + {}^{1}/_{1\mu f}} * \frac{1}{s^2}$$

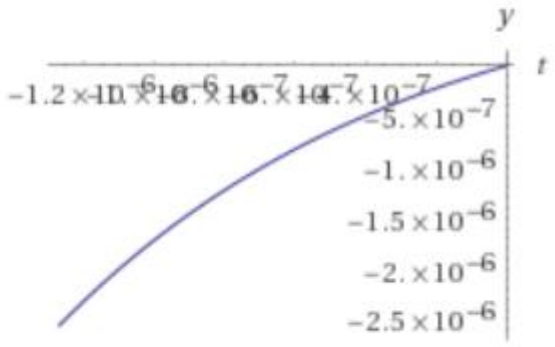
```
>> pkg load control
>> num=[0.001]
num =  0.0010000
>> den=[0.001 1000 1000000]
den =

         0.0010000      1000.0000000    100000

>> [r,p,k]=residue(num,den)
r =

   0.0000010020
  -0.0000010020

p =

    -1001.00201
  -998998.99799

k = [](0x0)
>>
```

Salida

$$Vout(s) = \frac{1 * 10^{-6}}{s + 1K} - \frac{1 * 10^{-6}}{s + 1M}$$

mediante las fórmulas de Laplace se tiene

Plots:



(t from −1.3 × 10^−6 to 0)