RESOLUÇÃO PROVA 1

SINAIS E SISTEMAS 1 - TURMA X

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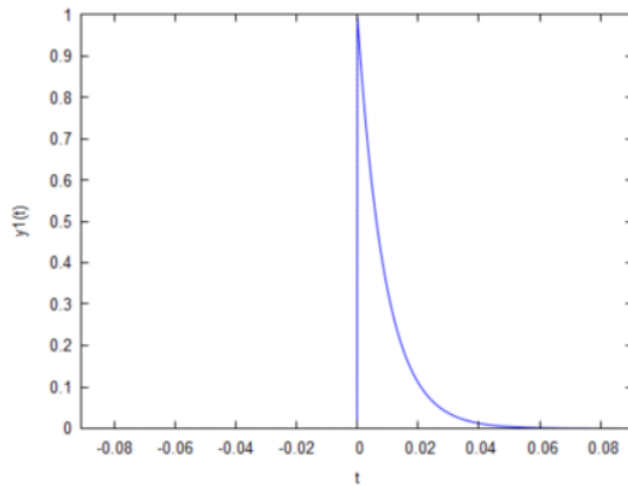**Tawane Paula Menezes**   **11521ECP014**

QUESTÃO 01

$MAT1: 11521ECP014, KANO1: 2, KCUR1: 3, KNUM1: 6$
$MAT2: 11621ECP003, KANO2: 3, KCUR2: 3, KNUM2: 4$
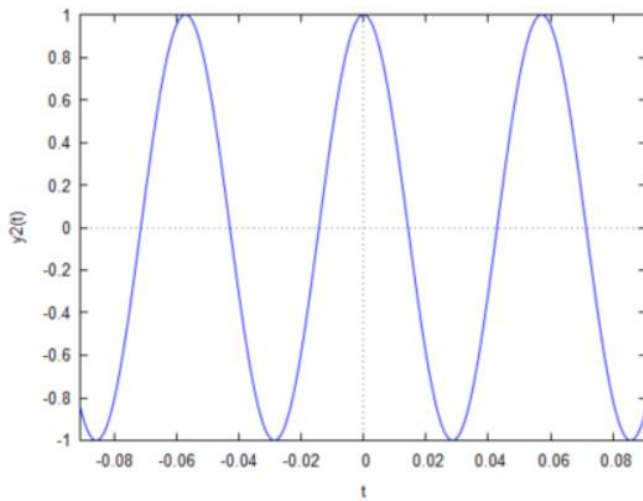$MAT3: 11621ETE009, KANO3: 3, KCUR3: 5, KNUM3: 1$

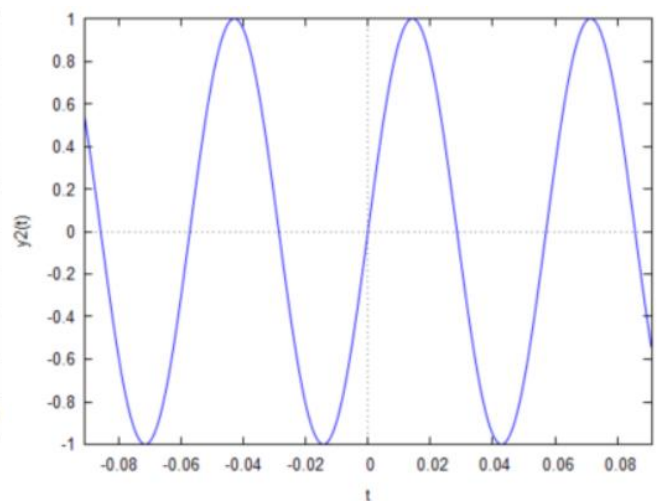## QUESTÃO 02

F0 = 110

LETRA A

y1(t):= exp(-f0*t)*u(t);

y2(t) := exp(j*f0*t);

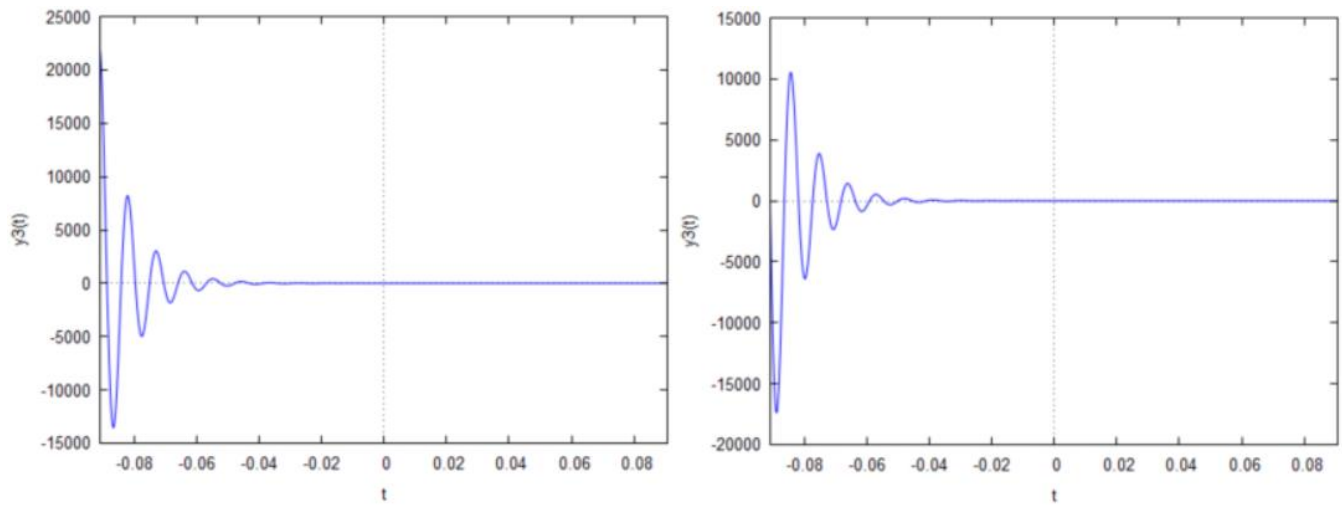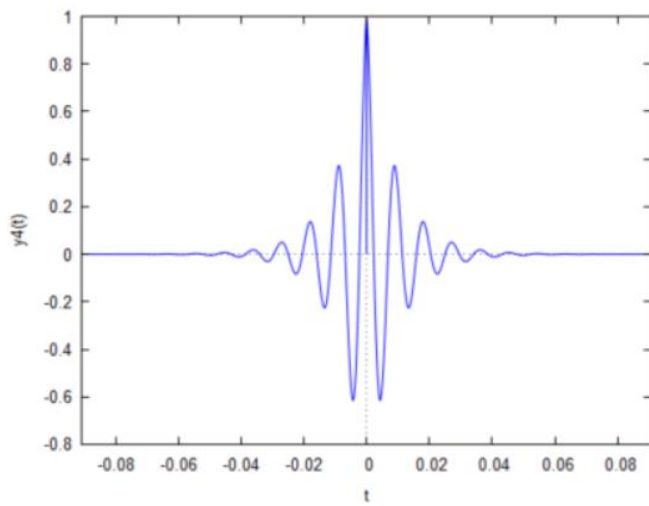| REAL	IMAGINÁRIO

y3(t) := exp(-f0*(1 + j*2*%pi)*t);

REAL   IMAGINÁRIO

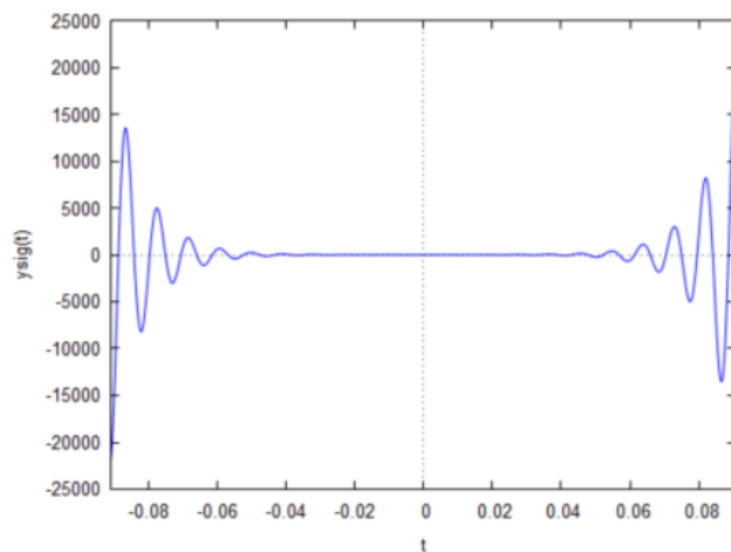**y4(t) := exp(−f0*t)*u(t)*cos(2*%pi*f0*t) + exp(f0*t)*u(-t)*cos(2*%pi*f0*t);**

LETRA B

y_sig(t) := -exp(-f0*t) * u(-t) * cos(2*%pi*f0*t) + exp(f0*t) * u(t) * cos(2*%pi*f0*t);

QUESTÃO 03

1) 2 e 3 ; 3 e 3 ; 3 e 5.
2) h(n)=2[n-3] + 3[n-3] + 3[n-5] = 5[n-3] + 3 [n-5].
3) 6 e 3; -4 e 3; 1 e 5; -1 e 2; 1 e 3; 1 e 3.
4) x(n)= 6[n-3] - 4[n-3] + 1[n-5] - 1[n-2] + 1[n-3] + 1[n-3] = 1[n-5] + 4[n-3] - 1[n-2].
5) y[n]=x[n]*h[n]=(1[n-5] + 4[n-3] - 1[n-2])*(5[n-3] + 3 [n-5]).

y[n]= $\frac{16n^3}{3} - 120n^2 + 450n$
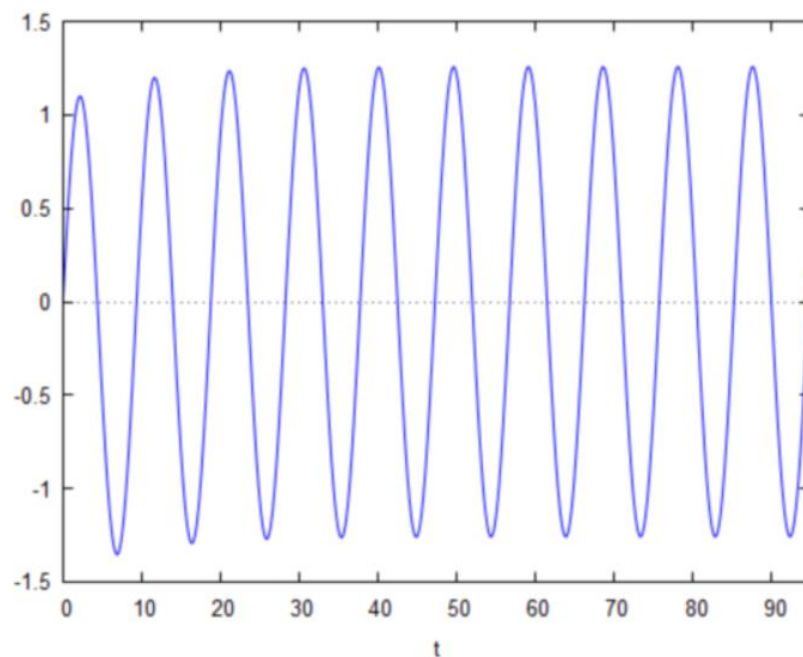

QUESTÃO 04

R1 = 6; R2 = 3.5; C = 1; A = 8;

tau = (R1 + R2)*C -> tau = 9,5.

Vin(t) = A cos(ω0 t);

$$\frac{\%e^{-\frac{2t}{19}}(16\%pi\%e^{\frac{2t}{19}}\sin(\frac{4\%pit}{19}) + 8\%e^{\frac{2t}{19}}\cos(\frac{4\%pit}{19}) - 8)}{4\%pi^2 + 1}$$

$$Vc(t) = \frac{\%e^{-\frac{2t}{19}}(16\%pi\%e^{\frac{2t}{19}}\sin(\frac{4\%pit}{19}) + 8\%e^{\frac{2t}{19}}\cos(\frac{4\%pit}{19}) - 8)}{4\%pi^2 + 1}$$
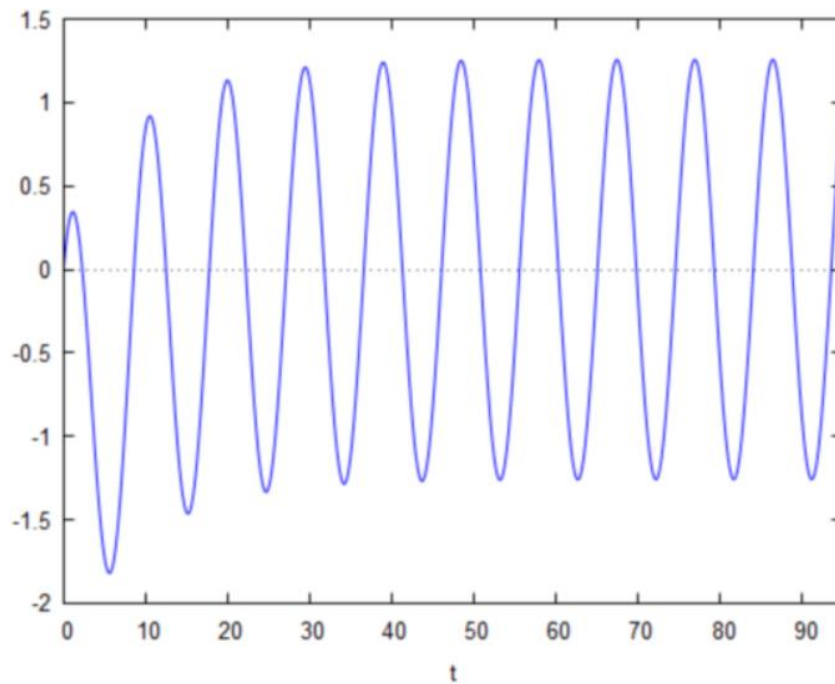

Gráfico

Vin(t) = A cos(ω0 t + π 4);

$$\frac{\%e^{-\frac{2t}{19}}((2^{\frac{7}{2}}\%pi - 2^{\frac{5}{2}})\%e^{\frac{2t}{19}}\sin(\frac{4\%pit}{19}) + (2^{\frac{7}{2}}\%pi + 2^{\frac{5}{2}})\%e^{\frac{2t}{19}}\cos(\frac{4\%pit}{19}) - 2^{\frac{7}{2}}\%pi - 2^{\frac{5}{2}})}{4\%pi^2 + 1}$$

$$Vc(t) = \frac{\%e^{-\frac{2t}{19}}((2^{\frac{7}{2}}\%pi - 2^{\frac{5}{2}})\%e^{\frac{2t}{19}}\sin(\frac{4\%pit}{19}) + (2^{\frac{7}{2}}\%pi + 2^{\frac{5}{2}})\%e^{\frac{2t}{19}}\cos(\frac{4\%pit}{19}) - 2^{\frac{7}{2}}\%pi - 2^{\frac{5}{2}})}{4\%pi^2 + 1}$$

Gráfico

Vin(t) = A exp(− 2 π ω0 t) cos(ω0 t)

$$\frac{\%e^{-\frac{365t}{38}}(256\%pi\%e^{\frac{2t}{19}}\sin(\frac{4\%pit}{19}) - 11424\%e^{\frac{2t}{19}}\cos(\frac{4\%pit}{19}) + 11424\%e^{\frac{19t}{2}})}{64\%pi^2 + 127449}$$

$$Vc(t) = \frac{\%e^{-\frac{365t}{38}}(256\%pi\%e^{\frac{2t}{19}}\sin(\frac{4\%pit}{19}) - 11424\%e^{\frac{2t}{19}}\cos(\frac{4\%pit}{19}) + 11424\%e^{\frac{19t}{2}})}{64\%pi^2 + 127449}$$

Gráfico