**NAME: EREMASARA ERNEST ABIYE**

**DEPARTMENT: ELECT/ELECT**

**COURSE CODE: ENG 231**

**MATRIC NUMBER: 17/ENG04/022**

ASSIGNMENT 3 AND 4

**ASSIGNMENT 3**

**INPUTS:**

commandwindow

clear

clc

close all

syms t

v(t)=110\*cos(120\*pi\*t)

i=diff(v)

p=diff(i)

t=0:0.01:0.35

vn=subs(v)

vnn=double(vn)

in=subs(i)

inn=double(in)

pn=subs(p)

pnn=double(pn)

plot (t,vnn)

hold on

plot (t,inn)

hold on

plot (t,pnn)

legend('voltage(v)','current(i)','power(W)')

grid on

grid minor

**OUTPUTS:**

v(t) =

110\*cos(120\*pi\*t)

i(t) =

-13200\*pi\*sin(120\*pi\*t)

p(t) =

-1584000\*pi^2\*cos(120\*pi\*t)

t =

 Columns 1 through 9

 0 0.0100 0.0200 0.0300 0.0400 0.0500 0.0600 0.0700 0.0800

 Columns 10 through 18

 0.0900 0.1000 0.1100 0.1200 0.1300 0.1400 0.1500 0.1600 0.1700

 Columns 19 through 27

 0.1800 0.1900 0.2000 0.2100 0.2200 0.2300 0.2400 0.2500 0.2600

 Columns 28 through 36

 0.2700 0.2800 0.2900 0.3000 0.3100 0.3200 0.3300 0.3400 0.3500

vn(t) =

[ 110, - (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, - (55\*5^(1/2))/2 - 55/2, 110, - (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, - (55\*5^(1/2))/2 - 55/2, 110, - (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, - (55\*5^(1/2))/2 - 55/2, 110, - (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, - (55\*5^(1/2))/2 - 55/2, 110, - (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, - (55\*5^(1/2))/2 - 55/2, 110, - (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, - (55\*5^(1/2))/2 - 55/2, 110, - (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, (55\*5^(1/2))/2 - 55/2, - (55\*5^(1/2))/2 - 55/2, 110]

vnn =

 Columns 1 through 9

 110.0000 -88.9919 33.9919 33.9919 -88.9919 110.0000 -88.9919 33.9919 33.9919

 Columns 10 through 18

 -88.9919 110.0000 -88.9919 33.9919 33.9919 -88.9919 110.0000 -88.9919 33.9919

 Columns 19 through 27

 33.9919 -88.9919 110.0000 -88.9919 33.9919 33.9919 -88.9919 110.0000 -88.9919

 Columns 28 through 36

 33.9919 33.9919 -88.9919 110.0000 -88.9919 33.9919 33.9919 -88.9919 110.0000

in(t) =

[ 0, 3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), -3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), 3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), -3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), 0, 3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), -3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), 3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), -3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), 0, 3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), -3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), 3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), -3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), 0, 3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), -3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), 3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), -3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), 0, 3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), -3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), 3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), -3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), 0, 3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), -3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), 3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), -3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), 0, 3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), -3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), 3300\*pi\*2^(1/2)\*(5^(1/2) + 5)^(1/2), -3300\*2^(1/2)\*pi\*(5 - 5^(1/2))^(1/2), 0]

inn =

 1.0e+04 \*

 Columns 1 through 9

 0 2.4375 -3.9439 3.9439 -2.4375 0 2.4375 -3.9439 3.9439

 Columns 10 through 18

 -2.4375 0 2.4375 -3.9439 3.9439 -2.4375 0 2.4375 -3.9439

 Columns 19 through 27

 3.9439 -2.4375 0 2.4375 -3.9439 3.9439 -2.4375 0 2.4375

 Columns 28 through 36

 -3.9439 3.9439 -2.4375 0 2.4375 -3.9439 3.9439 -2.4375 0

pn(t) =

[ -1584000\*pi^2, 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2, 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2, 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2, 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2, 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2, 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2, 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), -1584000\*pi^2\*(5^(1/2)/4 - 1/4), 1584000\*pi^2\*(5^(1/2)/4 + 1/4), -1584000\*pi^2]

pnn =

 1.0e+07 \*

 Columns 1 through 9

 -1.5633 1.2648 -0.4831 -0.4831 1.2648 -1.5633 1.2648 -0.4831 -0.4831

 Columns 10 through 18

 1.2648 -1.5633 1.2648 -0.4831 -0.4831 1.2648 -1.5633 1.2648 -0.4831

 Columns 19 through 27

 -0.4831 1.2648 -1.5633 1.2648 -0.4831 -0.4831 1.2648 -1.5633 1.2648

 Columns 28 through 36

 -0.4831 -0.4831 1.2648 -1.5633 1.2648 -0.4831 -0.4831 1.2648 -1.5633

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