EKEOGU IZUCHUKWU

17/ENG04/019

ELECTRICAL/ELECTRONICS ENGINEERING

commandwindow

clear

clc

syms t

v=110\*cos(120\*3.142\*t)

c=100\*10^-6

q=c\*v

t=0:0.01:0.35

vn=subs(v,t)

vnn=double(vn)

qn=subs(q,t)

qnn=double(qn)

i=diff(q)

in=subs(i,t)

inn=double(in)

p=i\*v

pn=subs(p,t)

pnn=double(pn)

plot(t,vnn,'blue')

hold on

plot(t,inn,'red')

hold on

plot(t,pnn,'black')

legend('voltage(v)','charge(columbs)','power(watts)')

grid on

grid minor

OUTPUT

v =

110\*cos((9426\*t)/25)

c =

1.0000e-04

q =

(11\*cos((9426\*t)/25))/1000

t =

Columns 1 through 12

0 0.0100 0.0200 0.0300 0.0400 0.0500 0.0600 0.0700 0.0800 0.0900 0.1000 0.1100

Columns 13 through 24

0.1200 0.1300 0.1400 0.1500 0.1600 0.1700 0.1800 0.1900 0.2000 0.2100 0.2200 0.2300

Columns 25 through 36

0.2400 0.2500 0.2600 0.2700 0.2800 0.2900 0.3000 0.3100 0.3200 0.3300 0.3400 0.3500

vn =

[ 110, 110\*cos(4713/1250), 110\*cos(4713/625), 110\*cos(14139/1250), 110\*cos(9426/625), 110\*cos(4713/250), 110\*cos(14139/625), 110\*cos(32991/1250), 110\*cos(18852/625), 110\*cos(42417/1250), 110\*cos(4713/125), 110\*cos(51843/1250), 110\*cos(28278/625), 110\*cos(61269/1250), 110\*cos(32991/625), 110\*cos(14139/250), 110\*cos(37704/625), 110\*cos(80121/1250), 110\*cos(42417/625), 110\*cos(89547/1250), 110\*cos(9426/125), 110\*cos(98973/1250), 110\*cos(51843/625), 110\*cos(108399/1250), 110\*cos(56556/625), 110\*cos(4713/50), 110\*cos(61269/625), 110\*cos(127251/1250), 110\*cos(65982/625), 110\*cos(136677/1250), 110\*cos(14139/125), 110\*cos(146103/1250), 110\*cos(75408/625), 110\*cos(155529/1250), 110\*cos(80121/625), 110\*cos(32991/250)]

vnn =

Columns 1 through 12

110.0000 -88.9603 33.8896 34.1452 -89.1181 109.9997 -88.8019 33.6337 34.4007 -89.2755 109.9987 -88.6429

Columns 13 through 24

33.3776 34.6560 -89.4323 109.9970 -88.4835 33.1214 34.9110 -89.5885 109.9947 -88.3235 32.8649 35.1659

Columns 25 through 36

-89.7442 109.9918 -88.1630 32.6082 35.4205 -89.8994 109.9882 -88.0019 32.3514 35.6749 -90.0541 109.9839

qn =

[ 11/1000, (11\*cos(4713/1250))/1000, (11\*cos(4713/625))/1000, (11\*cos(14139/1250))/1000, (11\*cos(9426/625))/1000, (11\*cos(4713/250))/1000, (11\*cos(14139/625))/1000, (11\*cos(32991/1250))/1000, (11\*cos(18852/625))/1000, (11\*cos(42417/1250))/1000, (11\*cos(4713/125))/1000, (11\*cos(51843/1250))/1000, (11\*cos(28278/625))/1000, (11\*cos(61269/1250))/1000, (11\*cos(32991/625))/1000, (11\*cos(14139/250))/1000, (11\*cos(37704/625))/1000, (11\*cos(80121/1250))/1000, (11\*cos(42417/625))/1000, (11\*cos(89547/1250))/1000, (11\*cos(9426/125))/1000, (11\*cos(98973/1250))/1000, (11\*cos(51843/625))/1000, (11\*cos(108399/1250))/1000, (11\*cos(56556/625))/1000, (11\*cos(4713/50))/1000, (11\*cos(61269/625))/1000, (11\*cos(127251/1250))/1000, (11\*cos(65982/625))/1000, (11\*cos(136677/1250))/1000, (11\*cos(14139/125))/1000, (11\*cos(146103/1250))/1000, (11\*cos(75408/625))/1000, (11\*cos(155529/1250))/1000, (11\*cos(80121/625))/1000, (11\*cos(32991/250))/1000]

qnn =

Columns 1 through 12

0.0110 -0.0089 0.0034 0.0034 -0.0089 0.0110 -0.0089 0.0034 0.0034 -0.0089 0.0110 -0.0089

Columns 13 through 24

0.0033 0.0035 -0.0089 0.0110 -0.0088 0.0033 0.0035 -0.0090 0.0110 -0.0088 0.0033 0.0035

Columns 25 through 36

-0.0090 0.0110 -0.0088 0.0033 0.0035 -0.0090 0.0110 -0.0088 0.0032 0.0036 -0.0090 0.0110

i =

-(51843\*sin((9426\*t)/25))/12500

in =

[ 0, -(51843\*sin(4713/1250))/12500, -(51843\*sin(4713/625))/12500, -(51843\*sin(14139/1250))/12500, -(51843\*sin(9426/625))/12500, -(51843\*sin(4713/250))/12500, -(51843\*sin(14139/625))/12500, -(51843\*sin(32991/1250))/12500, -(51843\*sin(18852/625))/12500, -(51843\*sin(42417/1250))/12500, -(51843\*sin(4713/125))/12500, -(51843\*sin(51843/1250))/12500, -(51843\*sin(28278/625))/12500, -(51843\*sin(61269/1250))/12500, -(51843\*sin(32991/625))/12500, -(51843\*sin(14139/250))/12500, -(51843\*sin(37704/625))/12500, -(51843\*sin(80121/1250))/12500, -(51843\*sin(42417/625))/12500, -(51843\*sin(89547/1250))/12500, -(51843\*sin(9426/125))/12500, -(51843\*sin(98973/1250))/12500, -(51843\*sin(51843/625))/12500, -(51843\*sin(108399/1250))/12500, -(51843\*sin(56556/625))/12500, -(51843\*sin(4713/50))/12500, -(51843\*sin(61269/625))/12500, -(51843\*sin(127251/1250))/12500, -(51843\*sin(65982/625))/12500, -(51843\*sin(136677/1250))/12500, -(51843\*sin(14139/125))/12500, -(51843\*sin(146103/1250))/12500, -(51843\*sin(75408/625))/12500, -(51843\*sin(155529/1250))/12500, -(51843\*sin(80121/625))/12500, -(51843\*sin(32991/250))/12500]

inn =

Columns 1 through 12

0 2.4394 -3.9457 3.9426 -2.4312 -0.0101 2.4476 -3.9488 3.9394 -2.4230 -0.0203 2.4558

Columns 13 through 24

-3.9519 3.9362 -2.4148 -0.0304 2.4640 -3.9550 3.9330 -2.4065 -0.0405 2.4721 -3.9580 3.9298

Columns 25 through 36

-2.3983 -0.0507 2.4802 -3.9610 3.9265 -2.3900 -0.0608 2.4884 -3.9640 3.9233 -2.3817 -0.0710

p =

-(570273\*cos((9426\*t)/25)\*sin((9426\*t)/25))/1250

pn =

[ 0, -(570273\*cos(4713/1250)\*sin(4713/1250))/1250, -(570273\*cos(4713/625)\*sin(4713/625))/1250, -(570273\*cos(14139/1250)\*sin(14139/1250))/1250, -(570273\*cos(9426/625)\*sin(9426/625))/1250, -(570273\*cos(4713/250)\*sin(4713/250))/1250, -(570273\*cos(14139/625)\*sin(14139/625))/1250, -(570273\*cos(32991/1250)\*sin(32991/1250))/1250, -(570273\*cos(18852/625)\*sin(18852/625))/1250, -(570273\*cos(42417/1250)\*sin(42417/1250))/1250, -(570273\*cos(4713/125)\*sin(4713/125))/1250, -(570273\*cos(51843/1250)\*sin(51843/1250))/1250, -(570273\*cos(28278/625)\*sin(28278/625))/1250, -(570273\*cos(61269/1250)\*sin(61269/1250))/1250, -(570273\*cos(32991/625)\*sin(32991/625))/1250, -(570273\*cos(14139/250)\*sin(14139/250))/1250, -(570273\*cos(37704/625)\*sin(37704/625))/1250, -(570273\*cos(80121/1250)\*sin(80121/1250))/1250, -(570273\*cos(42417/625)\*sin(42417/625))/1250, -(570273\*cos(89547/1250)\*sin(89547/1250))/1250, -(570273\*cos(9426/125)\*sin(9426/125))/1250, -(570273\*cos(98973/1250)\*sin(98973/1250))/1250, -(570273\*cos(51843/625)\*sin(51843/625))/1250, -(570273\*cos(108399/1250)\*sin(108399/1250))/1250, -(570273\*cos(56556/625)\*sin(56556/625))/1250, -(570273\*cos(4713/50)\*sin(4713/50))/1250, -(570273\*cos(61269/625)\*sin(61269/625))/1250, -(570273\*cos(127251/1250)\*sin(127251/1250))/1250, -(570273\*cos(65982/625)\*sin(65982/625))/1250, -(570273\*cos(136677/1250)\*sin(136677/1250))/1250, -(570273\*cos(14139/125)\*sin(14139/125))/1250, -(570273\*cos(146103/1250)\*sin(146103/1250))/1250, -(570273\*cos(75408/625)\*sin(75408/625))/1250, -(570273\*cos(155529/1250)\*sin(155529/1250))/1250, -(570273\*cos(80121/625)\*sin(80121/625))/1250, -(570273\*cos(32991/250)\*sin(32991/250))/1250]

pnn =

Columns 1 through 12

0 -217.0136 -133.7181 134.6199 216.6674 -1.1150 -217.3545 -132.8132 135.5184 216.3161 -2.2300 -217.6902

Columns 13 through 24

-131.9051 136.4137 215.9597 -3.3450 -218.0208 -130.9938 137.3058 215.5980 -4.4599 -218.3461 -130.0794 138.1946

Columns 25 through 36

215.2313 -5.5746 -218.6662 -129.1618 139.0800 214.8594 -6.6892 -218.9811 -128.2412 139.9622 214.4823 -7.8037

