

```

Mfile
1. commandwindow
2. clear
3. clc
4. syms t
5. v(t)=110*cos(120*pi*t)
6. c=100*10^-6
7. q=c*v
8. t=0:0.01:0.35
9. a=subs(q,t)
10.b=subs(v,t)
11.i=diff(q)
12.c=subs(i,t)
13.p=i*v
14.d=subs(p,t)
15.dn=double(d)
16.plot(t,b,'blue')
17.hold on
18.plot(t,a,'red')
19.hold on
20.plot(t,dn,'black')
21.grid on
22.grid minor
23.ylabel('Variables')
24.xlabel('Time(sec)')
25.legend('Voltage(V) ','Current(A) ','Power(W) ')

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Command Window

v(t) =

$110 \cos(120\pi t)$

c =

$1.0000e-04$

q(t) =

$(11 \cos(120\pi t)) / 1000$

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	



$$i(t) =$$

$$-(33\pi \sin(120\pi t))/25$$

$$c(t) =$$

$$\begin{aligned} & [ 0, (33 \cdot 2^{1/2} \pi (5 - 5^{1/2})^{1/2})/100, - \\ & (33 \pi \cdot 2^{1/2} (5^{1/2} + 5)^{1/2})/100, \\ & (33 \pi \cdot 2^{1/2} (5^{1/2} + 5)^{1/2})/100, -(33 \cdot 2^{1/2} \pi (5 - \\ & 5^{1/2})^{1/2})/100, 0, (33 \cdot 2^{1/2} \pi (5 - \\ & 5^{1/2})^{1/2})/100, -(33 \pi \cdot 2^{1/2} (5^{1/2} + 5)^{1/2})/100, \\ & (33 \pi \cdot 2^{1/2} (5^{1/2} + 5)^{1/2})/100, -(33 \cdot 2^{1/2} \pi (5 - \\ & 5^{1/2})^{1/2})/100, 0, (33 \cdot 2^{1/2} \pi (5 - \\ & 5^{1/2})^{1/2})/100, -(33 \pi \cdot 2^{1/2} (5^{1/2} + 5)^{1/2})/100, \\ & (33 \pi \cdot 2^{1/2} (5^{1/2} + 5)^{1/2})/100, -(33 \cdot 2^{1/2} \pi (5 - \\ & 5^{1/2})^{1/2})/100, 0, (33 \cdot 2^{1/2} \pi (5 - \\ & 5^{1/2})^{1/2})/100, -(33 \pi \cdot 2^{1/2} (5^{1/2} + 5)^{1/2})/100, \\ & (33 \pi \cdot 2^{1/2} (5^{1/2} + 5)^{1/2})/100, -(33 \cdot 2^{1/2} \pi (5 - \\ & 5^{1/2})^{1/2})/100, 0, (33 \cdot 2^{1/2} \pi (5 - \\ & 5^{1/2})^{1/2})/100, -(33 \pi \cdot 2^{1/2} (5^{1/2} + 5)^{1/2})/100, \\ & (33 \pi \cdot 2^{1/2} (5^{1/2} + 5)^{1/2})/100, -(33 \cdot 2^{1/2} \pi (5 - \\ & 5^{1/2})^{1/2})/100, 0, (33 \cdot 2^{1/2} \pi (5 - \\ & 5^{1/2})^{1/2})/100, -(33 \pi \cdot 2^{1/2} (5^{1/2} + 5)^{1/2})/100, \\ & (33 \pi \cdot 2^{1/2} (5^{1/2} + 5)^{1/2})/100, -(33 \cdot 2^{1/2} \pi (5 - \\ & 5^{1/2})^{1/2})/100, 0 ] \end{aligned}$$

$$p(t) =$$

$$-(726\pi \cos(120\pi t) \sin(120\pi t))/5$$

$$d(t) =$$

$$\begin{aligned} & [ 0, -(363 \cdot 2^{1/2} \pi (5^{1/2}/4 + 1/4) (5 - \\ & 5^{1/2})^{1/2})/10, -(363 \cdot 2^{1/2} \pi (5^{1/2}/4 - \\ & 1/4) (5^{1/2} + 5)^{1/2})/10, (363 \cdot 2^{1/2} \pi (5^{1/2}/4 - \\ & 1/4) (5^{1/2} + 5)^{1/2})/10, (363 \cdot 2^{1/2} \pi (5^{1/2}/4 + \\ & 1/4) (5 - 5^{1/2})^{1/2})/10, 0, -(363 \cdot 2^{1/2} \pi (5^{1/2}/4 + \\ & 1/4) (5 - 5^{1/2})^{1/2})/10, -(363 \cdot 2^{1/2} \pi (5^{1/2}/4 - \\ & 1/4) (5^{1/2} + 5)^{1/2})/10, (363 \cdot 2^{1/2} \pi (5^{1/2}/4 - \\ & 1/4) (5^{1/2} + 5)^{1/2})/10, (363 \cdot 2^{1/2} \pi (5^{1/2}/4 + \\ & 1/4) (5 - 5^{1/2})^{1/2})/10, 0, -(363 \cdot 2^{1/2} \pi (5^{1/2}/4 + \\ & 1/4) (5 - 5^{1/2})^{1/2})/10, 0 ] \end{aligned}$$

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1/4)*(5 - 5^(1/2))^(1/2))/10, -(363*2^(1/2)*pi*(5^(1/2)/4 -
1/4)*(5^(1/2) + 5^(1/2))/10, (363*2^(1/2)*pi*(5^(1/2)/4 -
1/4)*(5^(1/2) + 5^(1/2))/10, (363*2^(1/2)*pi*(5^(1/2)/4 +
1/4)*(5 - 5^(1/2))^(1/2))/10, 0, -(363*2^(1/2)*pi*(5^(1/2)/4 +
1/4)*(5 - 5^(1/2))^(1/2))/10, -(363*2^(1/2)*pi*(5^(1/2)/4 -
1/4)*(5^(1/2) + 5^(1/2))/10, (363*2^(1/2)*pi*(5^(1/2)/4 -
1/4)*(5^(1/2) + 5^(1/2))/10, (363*2^(1/2)*pi*(5^(1/2)/4 +
1/4)*(5 - 5^(1/2))^(1/2))/10, 0, -(363*2^(1/2)*pi*(5^(1/2)/4 +
1/4)*(5 - 5^(1/2))^(1/2))/10, -(363*2^(1/2)*pi*(5^(1/2)/4 -
1/4)*(5^(1/2) + 5^(1/2))/10, (363*2^(1/2)*pi*(5^(1/2)/4 -
1/4)*(5^(1/2) + 5^(1/2))/10, (363*2^(1/2)*pi*(5^(1/2)/4 +
1/4)*(5 - 5^(1/2))^(1/2))/10, 0, -(363*2^(1/2)*pi*(5^(1/2)/4 +
1/4)*(5 - 5^(1/2))^(1/2))/10, -(363*2^(1/2)*pi*(5^(1/2)/4 -
1/4)*(5^(1/2) + 5^(1/2))/10, (363*2^(1/2)*pi*(5^(1/2)/4 -
1/4)*(5^(1/2) + 5^(1/2))/10, (363*2^(1/2)*pi*(5^(1/2)/4 +
1/4)*(5 - 5^(1/2))^(1/2))/10, 0]

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dn =

Columns 1 through 12

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      0 -216.9166 -134.0618  134.0618  216.9166      0 -
216.9166 -134.0618  134.0618  216.9166      0 -216.9166

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Columns 13 through 24

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-134.0618  134.0618  216.9166      0 -216.9166 -134.0618
134.0618  216.9166      0 -216.9166 -134.0618  134.0618

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Columns 25 through 36

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      216.9166      0 -216.9166 -134.0618  134.0618  216.9166
0 -216.9166 -134.0618  134.0618  216.9166      0

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