

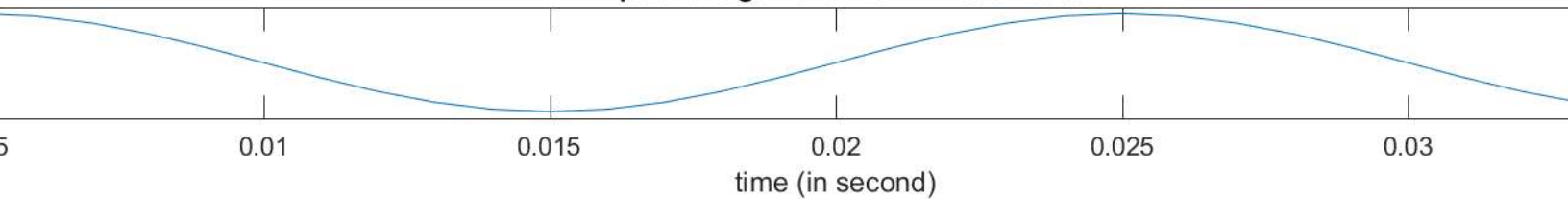
```
clc;
clear all;
close all;
R=1000;
L=3.18;
C = 3.18*10^-6;
b = inv(2*pi*C);
f=50;
Vin=220*sqrt(2)+0i;
c =2*pi*f*L;
%Phase angle of Input voltage has been taken as reference
%rms value of input voltage is 220 V
Z=R+ c*1i -b*1i;
ZLC = c*1i - b*1i;
vr = R/Z*Vin;
vlc = ZLC/Z*Vin;
vl = c*1i/ZLC*vlc;
vc = -b*1i/ZLC*vlc;

%Finding value of total impedance from the value of R and L
%Z=R+jX
I=Vin/Z;
%Finding series current, I
amplitude_I=sqrt(2)*abs(I);
angle_I=angle(I);
%Finding magnitude and angle of I
%Converting rms to peak value
amplitude_Vr=sqrt(2)*abs(vr);
angle_Vr=angle(vr);
amplitude_Vl=sqrt(2)*abs(vl);
angle_Vl=angle(vl);
amplitude_Vc=sqrt(2)*abs(vc);
angle_Vc=angle(vc);
amplitude_V=sqrt(2)*abs(Vin);
angle_V=angle(Vin);
%Finding magnitude and angle of Vin
t=0:1/(20*f):2/f;
%time array for plotting first two cycles of Vin and I
V_in=amplitude_V*sin(2*pi*f*t+angle_V);
I_t=amplitude_I*sin(2*pi*f*t+angle_I);
V_r=amplitude_Vr*sin(2*pi*f*t+angle_Vr);
V_l=amplitude_Vl*sin(2*pi*f*t+angle_Vl);
V_c=amplitude_Vc*sin(2*pi*f*t+angle_Vc);
%Finding Instantaneous value of input Vin and I
subplot(5,1,1), plot(t,V_in);
title('Input voltage vs. time in RLC circuit')
xlabel('time (in second)'),ylabel('Voltage (in Volt)');
subplot(5,1,2), plot(t,I_t);
title('Series current vs. time in RLC circuit')
```

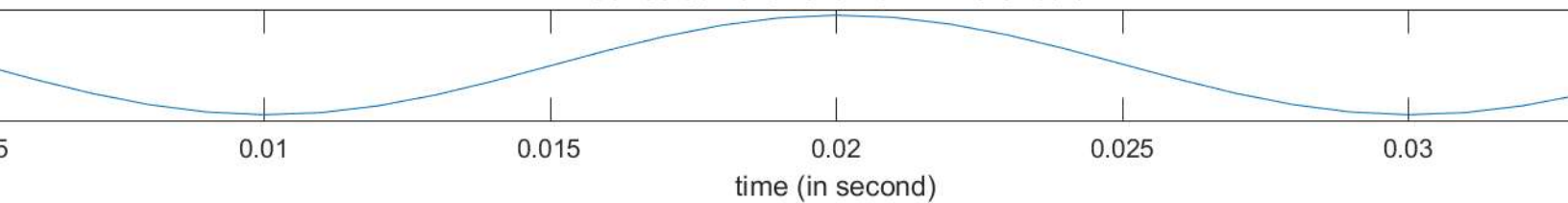
---

```
xlabel('time (in second)'),ylabel('Series current (in Ampere)');
subplot(5,1,3), plot(t,V_r);
title('Voltage_R vs. time in RLC circuit')
xlabel('time (in second)'),ylabel('Voltage (in Volt)');
subplot(5,1,4), plot(t,V_l);
title('voltage_L vs. time in RLC circuit')
xlabel('time (in second)'),ylabel('Voltage (in Volt)');
subplot(5,1,5), plot(t,V_c);
title('voltage_C vs. time in RLC circuit')
xlabel('time (in second)'),ylabel('Voltage (in Volt)');
```

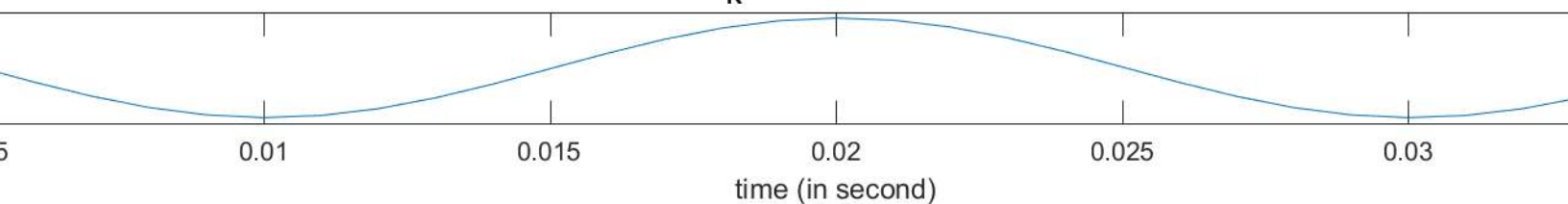
**Input voltage vs. time in RLC circuit**



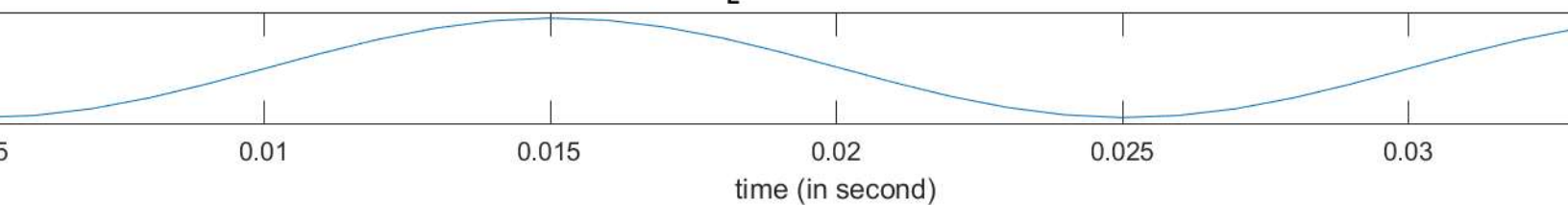
**Series current vs. time in RLC circuit**



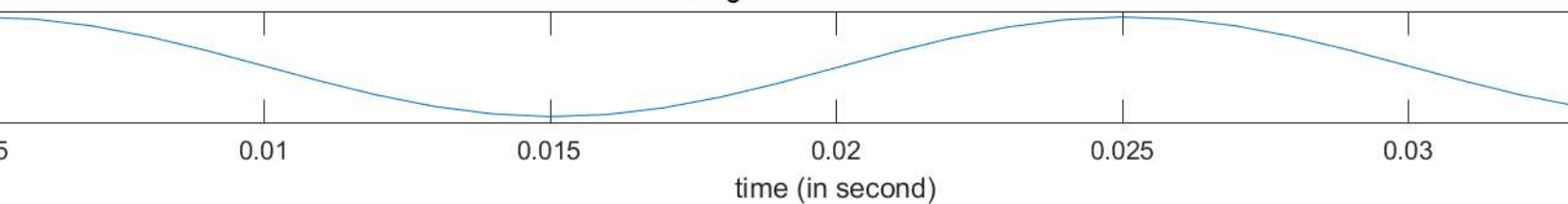
**Voltage<sub>R</sub> vs. time in RLC circuit**



**voltage<sub>L</sub> vs. time in RLC circuit**



**voltage<sub>C</sub> vs. time in RLC circuit**



%2. matrix operations, loop etc.problem 2:

close all; clear all; clc;

a = [1 -2 3; 3 0 4; -8 9 -11];

```
- for i =1:size(a,1)
-     for j = 1:size(a,2)
-         if a(i,j) < 0
-             a(i,j) = 0;
-         else
-             a(i,j) = 1;
-         end
-     end
- end
a
```

a =

1	0	1
1	1	1
0	1	0

```
%matrix. problem-3:
close all; clear all; clc;
q_mat = [15 20 10 12];
min = q_mat(1,1); s = min;
for j = 2:size(q_mat,2)
    s = s+ q_mat(1,j);
    if q_mat(1,j) < min
        min = q_mat(1,j);
    end
end
average = (s - min)/3
```

average =

15.6667

$f_x$  >>

```
close all; clear all; clc;
a = [1 -2 3; 3 0 4; -8 9 -11]
diag_sum(a)
b = [1 -2 3; 3 0 4; -8 9 11]
diag_sum(b)
c = [2 -2 3; 3 0 4; -8 9 7]
diag_sum(c)
```

```
1 function [] = diag_sum( a )
2     sm = 'sum of the diagonal elements is smaller.';
3     l = 'sum of the diagonal elements is larger.';
4     same = 'sum of the diagonal elements is same.';
5     s = 0; b = 0;
6     for i = 1:size(a,1)
7         for j = 1:size(a,2)
8             if i == j
9                 s = s + a(i,j);
10            else
11                b = b + a(i,j);
12            end
13        end
14    end
15    if s > b
16        disp(l)
17    else if s < b
18        disp(sm)
19    else disp(same)
20    end
21 end
22 end
```

Command Window

a =

1	-2	3
3	0	4
-8	9	-11

sum of the diagonal elements is smaller.

b =

1	-2	3
3	0	4
-8	9	11

sum of the diagonal elements is larger.

c =

2	-2	3
3	0	4
-8	9	7

sum of the diagonal elements is same.

 >>

```
%assignment 8_fibonacci
```

```
n = input('Enter number of term for displaying fibonacci: ');
```

```
fib(1) = 0; fib(2) = 1;
```

```
for i = 3:n+1
```

```
    fib(i) = fib(i-1) + fib(i-2);
```

```
end
```

```
disp(fib(2:length(fib)));
```

Enter number of term for displaying fibonacci: 5

1   1   2   3   5

>> matrix\_problem\_5

Enter number of term for displaying fibonacci: 8

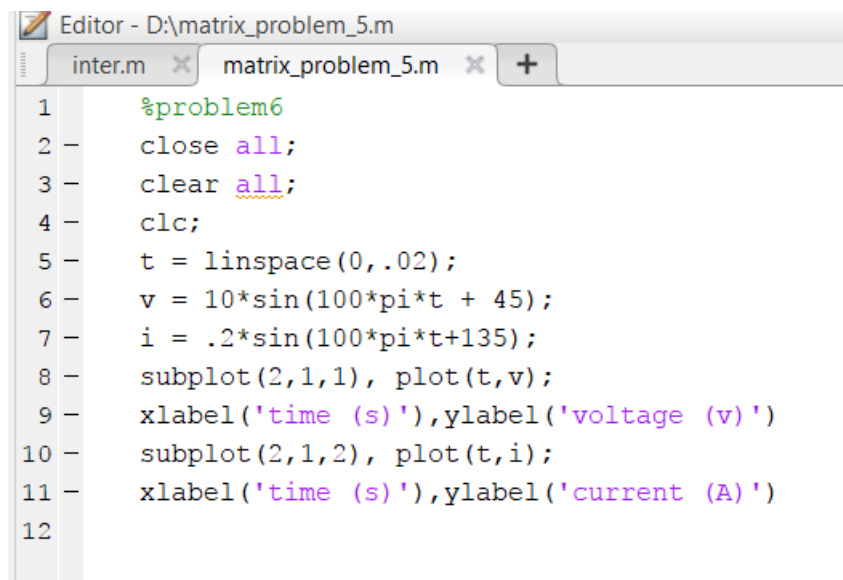
Columns 1 through 5

1   1   2   3   5

Columns 6 through 8

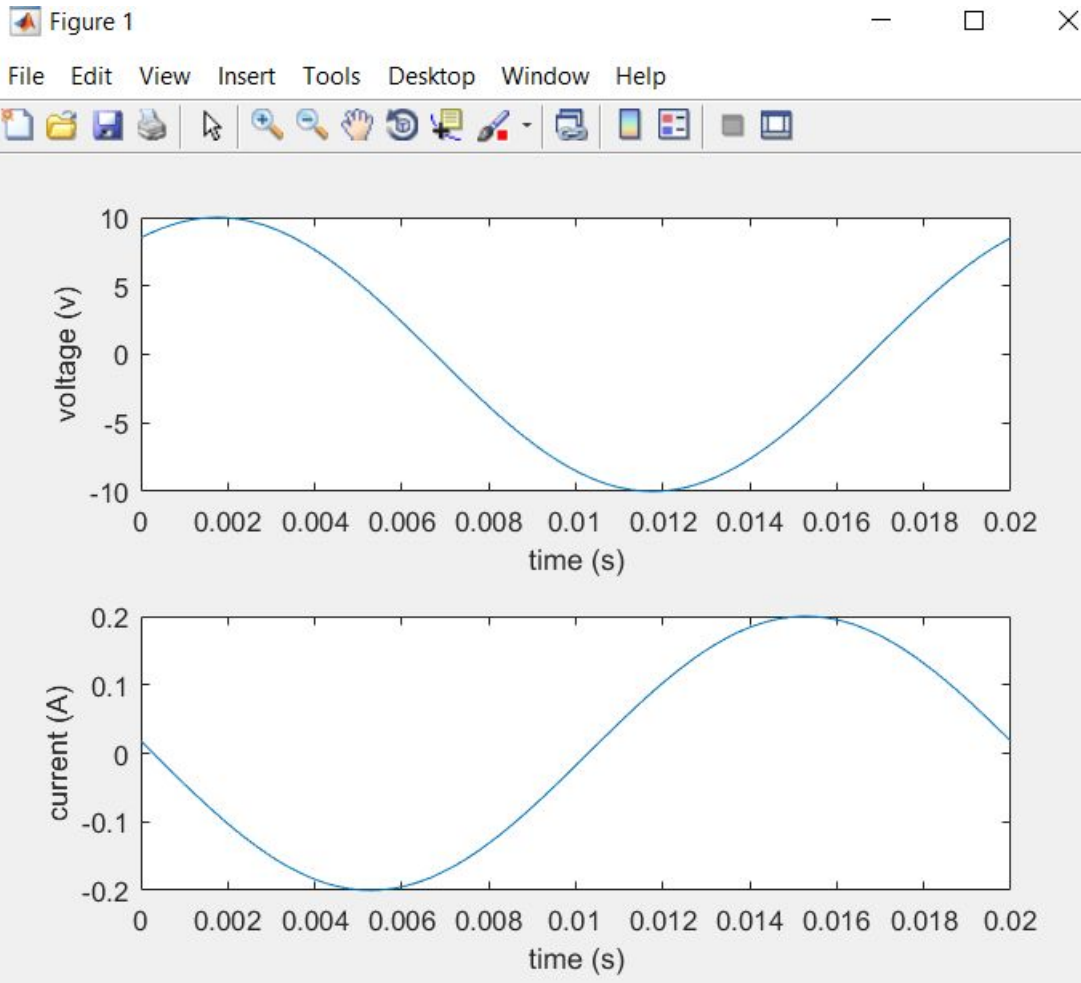
8   13   21





The image shows a MATLAB Editor window with the title bar 'Editor - D:\matrix\_problem\_5.m'. There are two tabs: 'inter.m' and 'matrix\_problem\_5.m'. The 'matrix\_problem\_5.m' tab is active. The script contains the following code:

```
1 %problem6
2 close all;
3 clear all;
4 clc;
5 t = linspace(0,.02);
6 v = 10*sin(100*pi*t + 45);
7 i = .2*sin(100*pi*t+135);
8 subplot(2,1,1), plot(t,v);
9 xlabel('time (s)'),ylabel('voltage (v)')
10 subplot(2,1,2), plot(t,i);
11 xlabel('time (s)'),ylabel('current (A)')
12
```



```
Editor - D:\matrix_problem_6.m
inter.m x matrix_problem_6.m x +
1 %problem7
2 close all;
3 clear all;
4 clc; s = 0;
5 A = [1 4 3 15 6];
6 for j = 1:size(A,2)
7     if A(1,j) > s
8         s = A(1,j);
9     end
10 end
11
12 for j = 1:size(A,2)
13     if A(1,j) == s
14         disp(j)
15     end
16 end
17
```

```
Command Window
4
fx >>
```