

**1)**

```
>> a = [0:0.1:2*pi]
```

```
a =
```

Columns 1 through 9:

```
0.00000  0.10000  0.20000  0.30000  0.40000  0.50000  0.60000  0.70000  0.80000
```

Columns 10 through 18:

```
0.90000  1.00000  1.10000  1.20000  1.30000  1.40000  1.50000  1.60000  1.70000
```

Columns 19 through 27:

```
1.80000  1.90000  2.00000  2.10000  2.20000  2.30000  2.40000  2.50000  2.60000
```

Columns 28 through 36:

2.70000 2.80000 2.90000 3.00000 3.10000 3.20000 3.30000 3.40000 3.50000

Columns 37 through 45:

3.60000 3.70000 3.80000 3.90000 4.00000 4.10000 4.20000 4.30000 4.40000

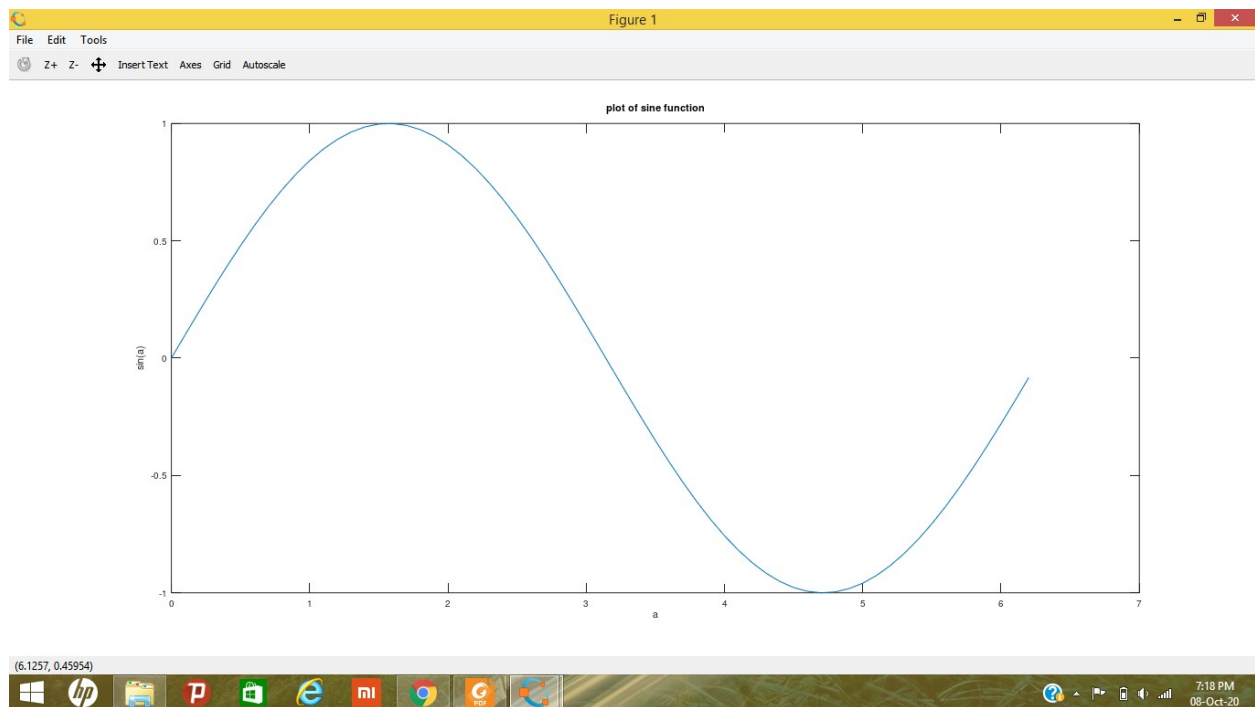
Columns 46 through 54:

4.50000 4.60000 4.70000 4.80000 4.90000 5.00000 5.10000 5.20000 5.30000

Columns 55 through 63:

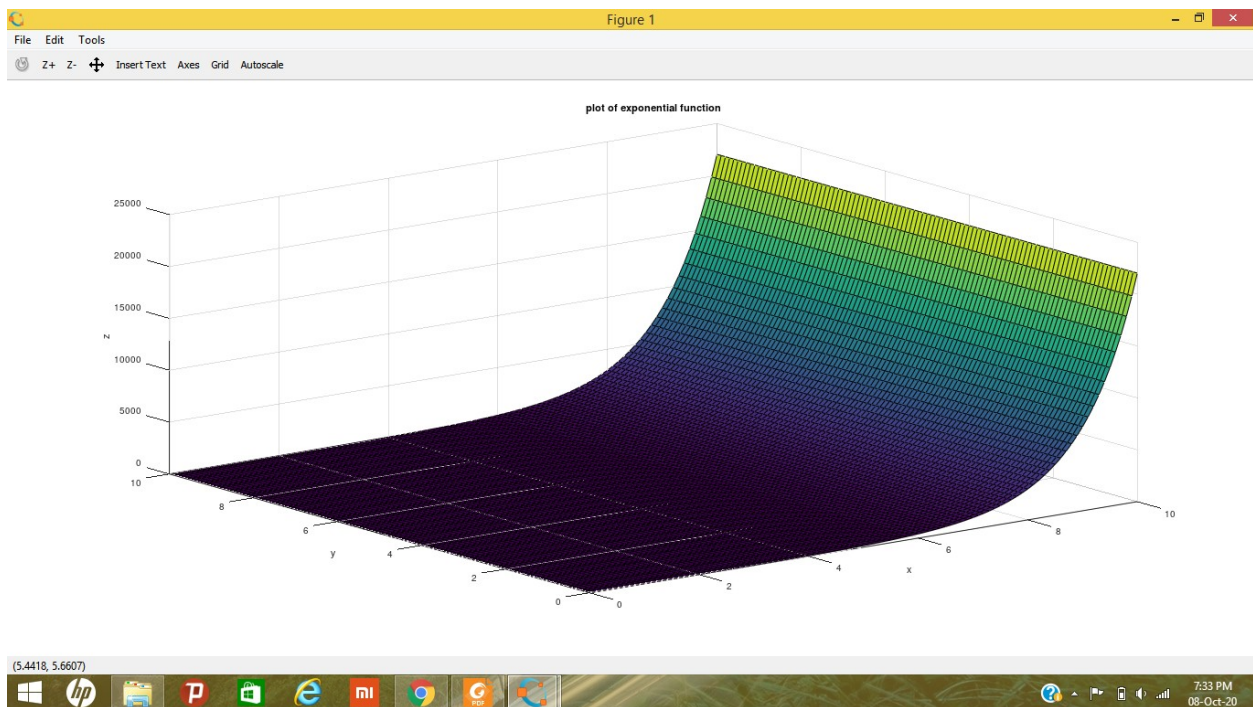
5.40000 5.50000 5.60000 5.70000 5.80000 5.90000 6.00000 6.10000 6.20000

```
>> b = sin(a);  
>> plot(a,b)  
>> xlabel('a');  
>> ylabel('sin(a)');  
>> title('plot of sine function');
```



2)

```
[x,y] = meshgrid(0:0.1:10);           % x,y, and z axis coordinates
>> z = exp(x);                        % z axis as a exponential function of x
>> surf(x,y,z)
>> xlabel('x');
>> ylabel('y');
>> zlabel('z');
>> title('plot of exponential function');
```



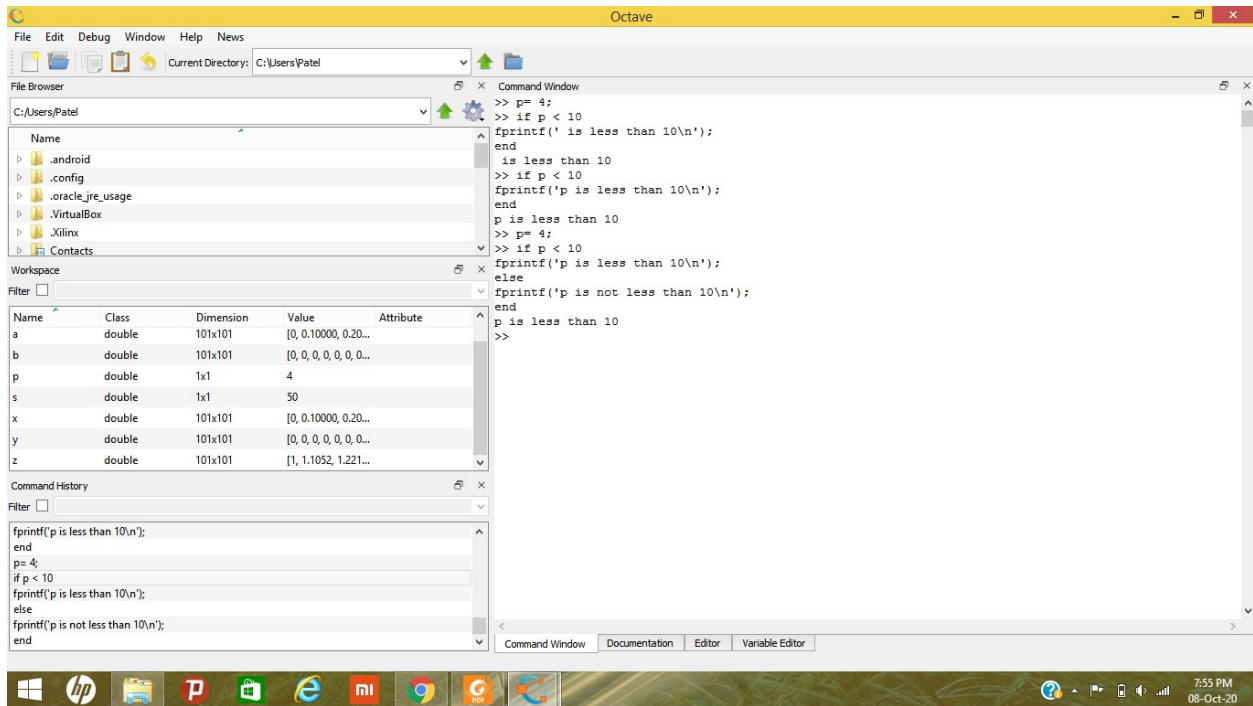
3)

If statement

```
>> p= 4;
>> if p < 10
fprintf('p is less than 10\n');
end
p is less than 10
```

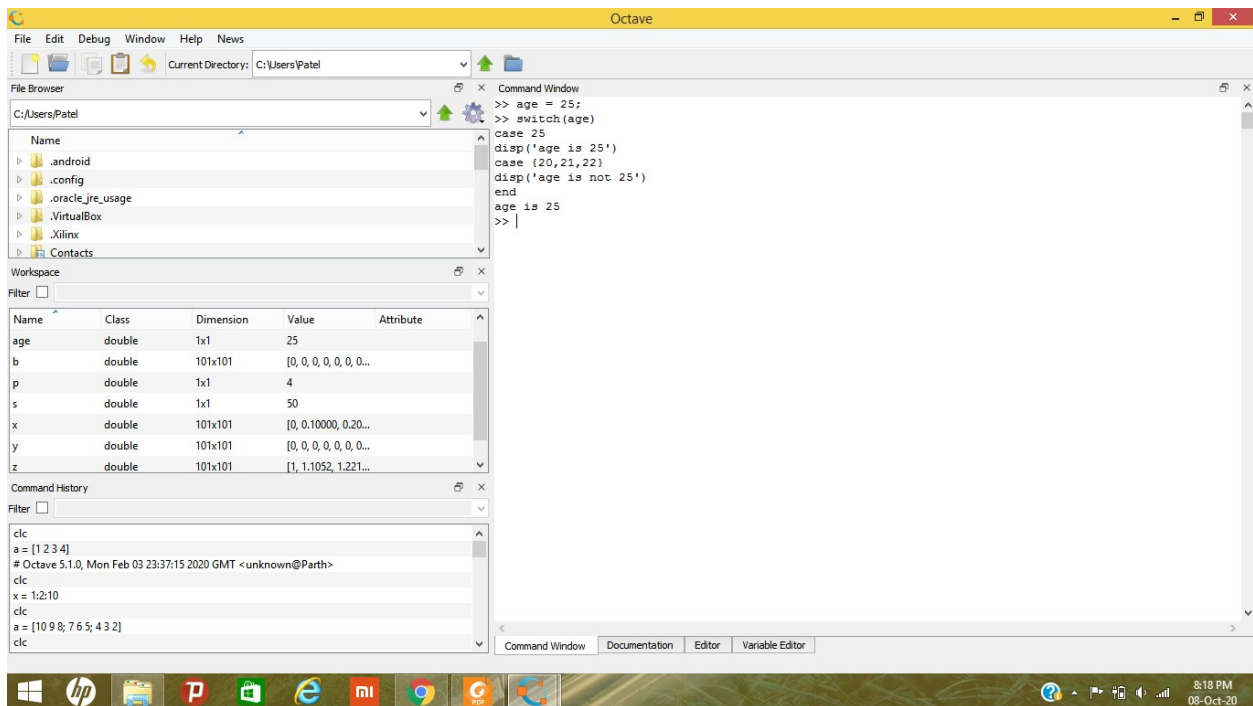
If-else statement

```
>> p= 4;
>> if p < 10
fprintf('p is less than 10\n');
else
fprintf('p is not less than 10\n');
end
p is less than 10
>>
```



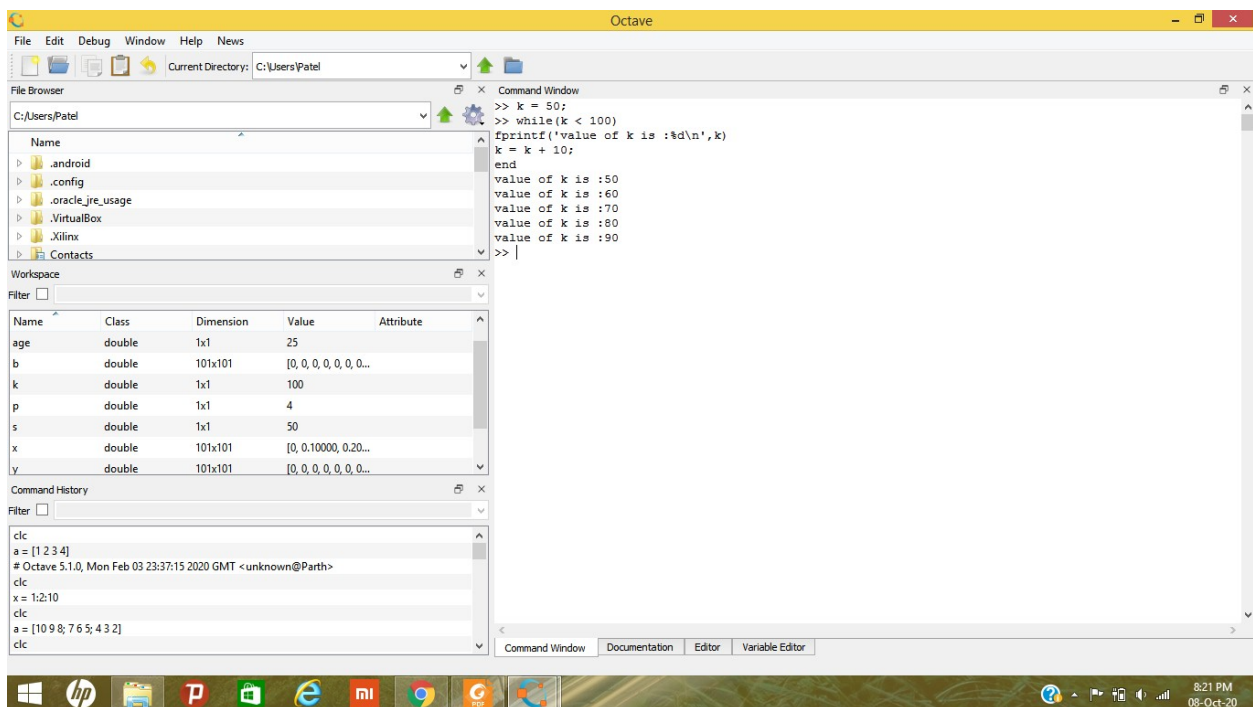
4)

```
>> age = 25;  
>> switch(age)  
case 25  
disp('age is 25')  
case {20,21,22}  
disp('age is not 25')  
end  
age is 25  
>>
```



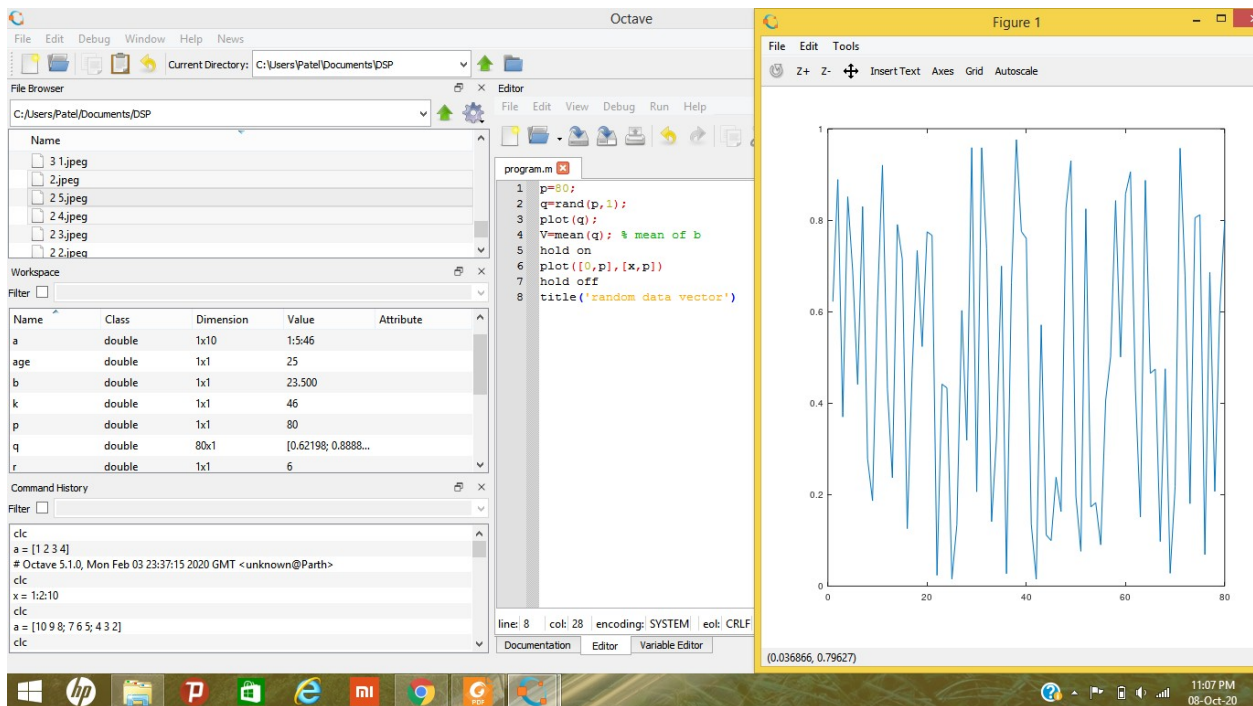
5)

```
>> k = 50;  
>> while(k < 100)  
fprintf('value of k is :%d\n',k)  
k = k + 10;  
end  
value of k is :50  
value of k is :60  
value of k is :70  
value of k is :80  
value of k is :90  
>>
```



6)

```
p=80; % creating a random value as 80
q=rand(p,1); % random vector generator
plot(q);
V=mean(q); % mean of b
hold on
plot([0,p],[x,p])
hold off
title('random data vector')
```



7)

```
function F1= enter(n)      % user defined func
syms k x
F1 = symsum(k*sin(k*x),k,1,n)
```

The screenshot displays the Octave Online web interface. The top bar is red with the Octave logo and 'Octave Online' text on the left, and a 'MENU' button on the right. Below the bar, the interface is divided into three main sections. The left section is a file manager showing a file named 'enter.m'. The middle section is a code editor with a red background, containing the following code:

```
1 function F1= enter(n)
2
3 syms k x
4
5 F1 = symsum(k*sin(k*x),k,1,n)
```

The right section is a console with a red background, showing the command 'octave:6> enter(6)' and its output:

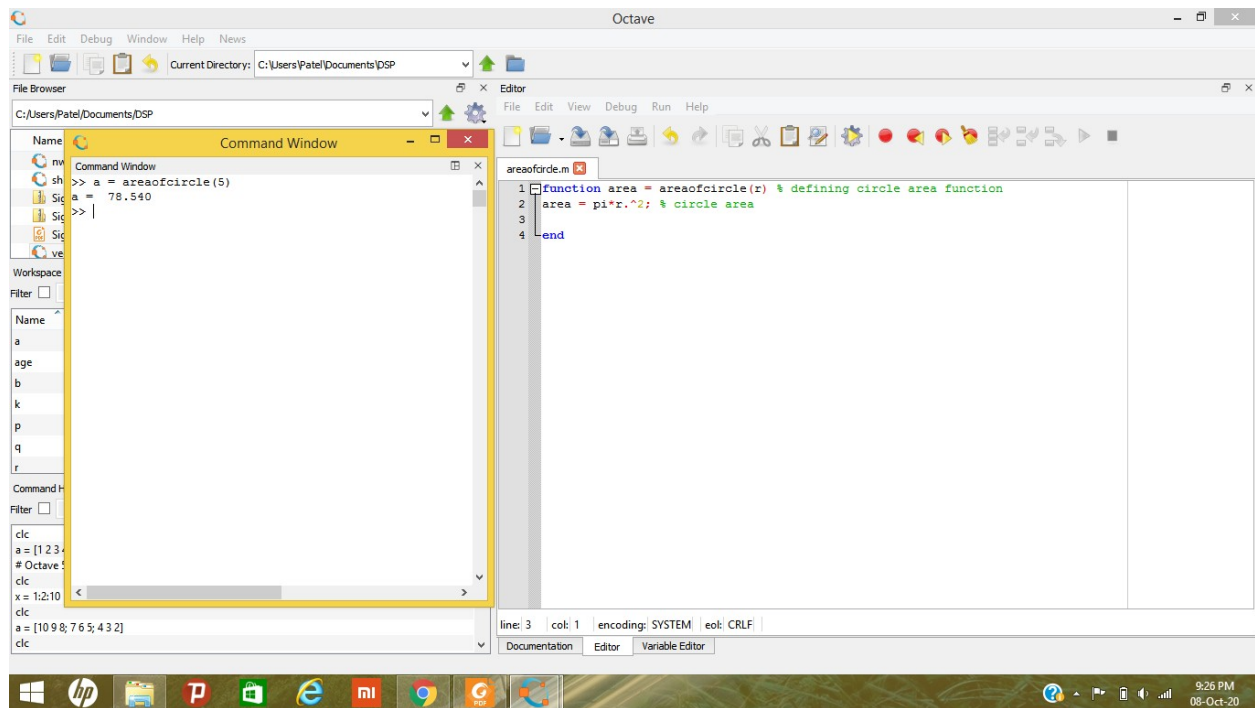
```
F1 = (sym) sin(x) + 2*sin(2*x) + 3*sin(3*x) + 4*sin(4*x) + 5*sin(5*x) + 6*sin(6*x)
ans = (sym) sin(x) + 2*sin(2*x) + 3*sin(3*x) + 4*sin(4*x) + 5*sin(5*x) + 6*sin(6*x)
```



8)

```
function area = areaofcircle(r)    % user defined function
area = pi*r.^2; % circle area

end
```



**9)**

```
a=1:5:50;  
b=mean(a);  
for k=1:5:50  
    if (k<b)  
        fprintf ('%d < %d\n',k,b);  
    else if  
        isequal(k,z)  
        fprintf('%d = %d\n',k,b);  
    else  
        fprintf('%d > %d\n',k,b);  
    end  
end  
end  
end
```

