1

a) a = 2 : 4 : 30
   a = 2 6 10 14 18 22 26 30

b) b = [a; a; a; a; a;]
   b =
       2 6 10 14 18 22 26 30
       2 6 10 14 18 22 26 30
       2 6 10 14 18 22 26 30
       2 6 10 14 18 22 26 30
       2 6 10 14 18 22 26 30

c) c = b(2 : 2 : 4,1 : 2 : 3)
   c =
       2 10
       2 10

d) d = a.*b(3,:)
   d =
       4 36 100 196 324 484 676 900

e) w = [ones(3,1)' 2:5 zeros(1,3)]
   w =
       1
       1
       1

f) b(2,[1 3]) = b(2,[3,1]);
   b =
       2 6 10 14 18 22 26 30
       10 6 2 14 18 22 26 30
       2 6 10 14 18 22 26 30
       2 6 10 14 18 22 26 30
       2 6 10 14 18 22 26 30

g) e = 0:-2:5
   e =
       empy double row vector

2)

a) A = Z(1:3, [1 3])
b) B = Z(2,2:5)
c) C = Z([3 4],[3 4])
d) D = Z(1: 2: 5, 1: 2: 5)

3)

```
function v = rocketvel_HW1_3(t)


switch t

    case t * (0 <= t & t <= 8)
        v = 10*t^2-5*t;
    case t*(8 < t & t <= 16)
        v = 624-5*t;
    case t*(16< t & t <= 26)
        v = 36*t+12*(t-16)^2;
    case t*(t>26)
        v=2136*exp(-0.1*(t-26));
    case t*(t<0)
        v = 0;
end

end

t = [-5:50];
v = [];
for i = 1:56

    v(i) = rocketvel_HW1_3(t(i));

end

figure
plot(t,v)
```
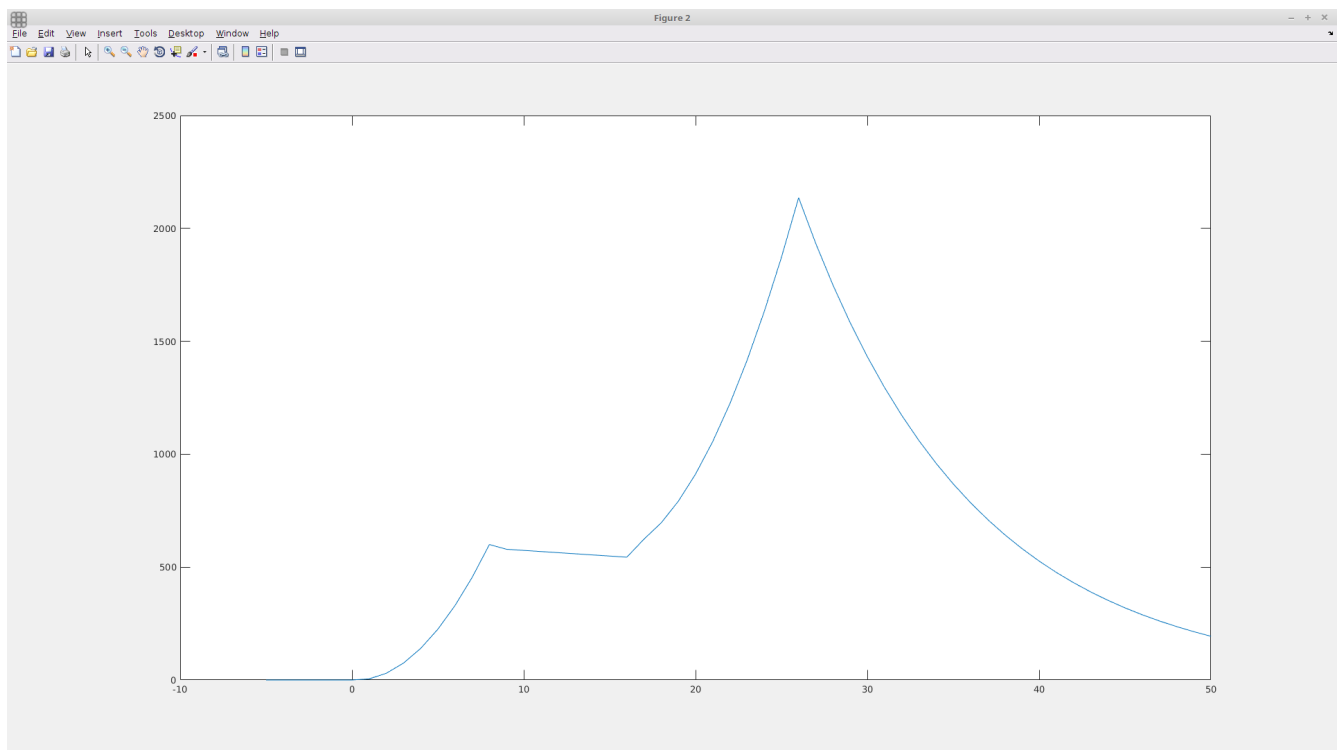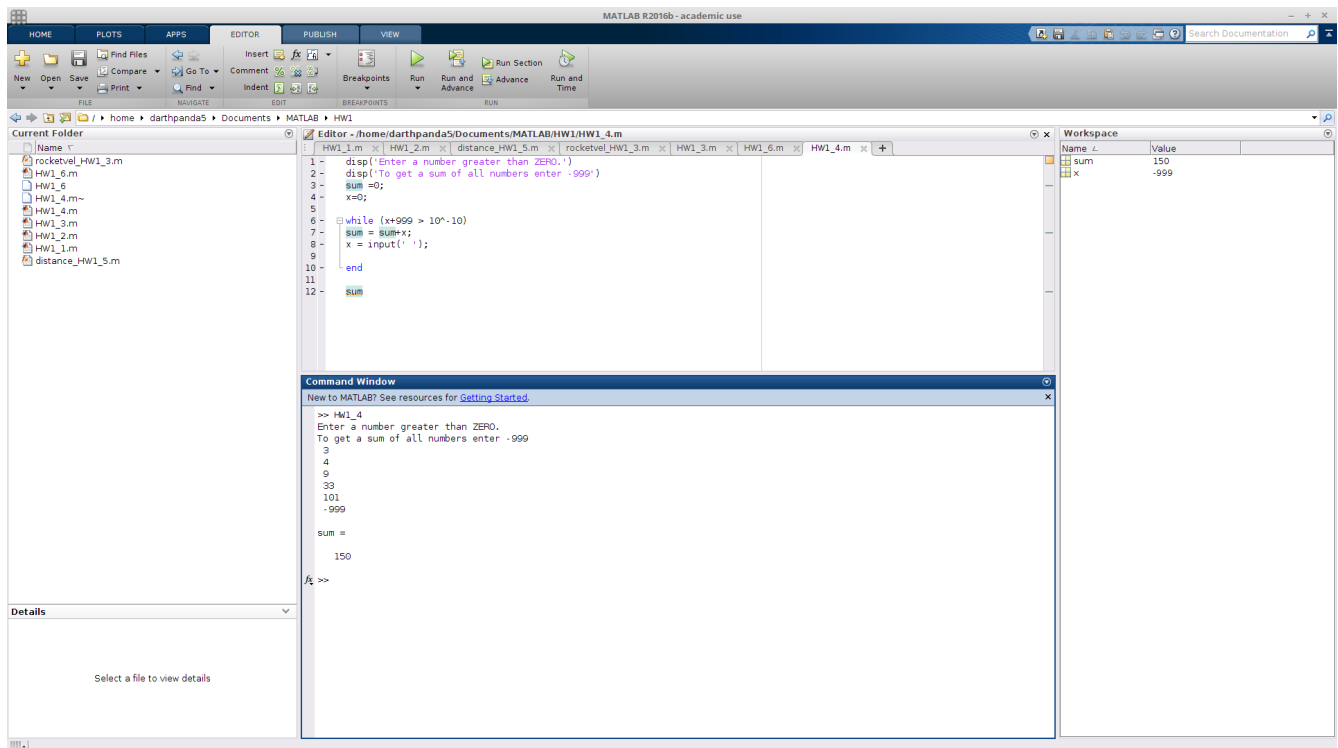
4) disp('Enter a number greater than ZERO.')
disp('To get a sum of all numbers enter -999')
sum =0;
x=0;

while (x+999 > 10^-10)
sum = sum+x;
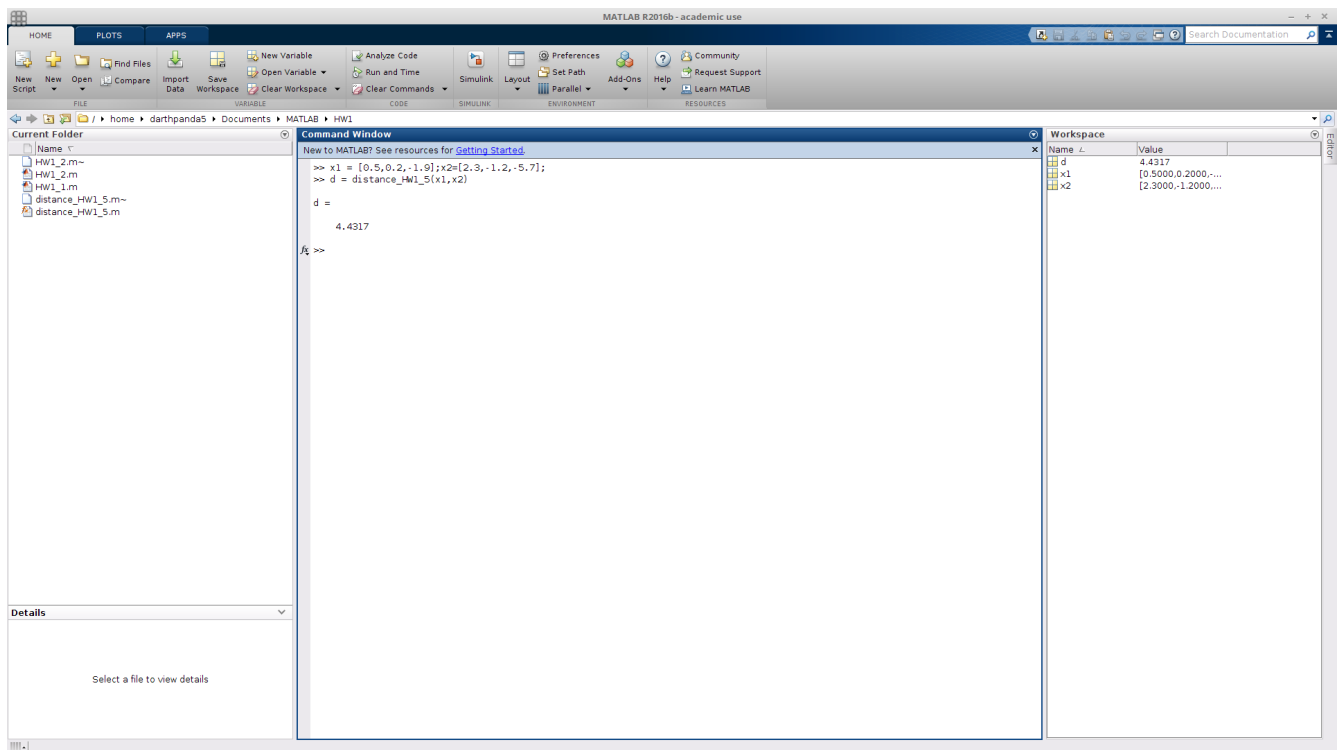x = input(' ');

end

sum

5)
```
function d = distance_HW1_5(x,y)

a = x(1)-y(1);
b = x(2)-y(2);
c = x(3)-y(3);

d = sqrt(a*a+b*b+c*c);

end
```

6)
```
[x,y] = meshgrid(0:0.02*pi:2*pi);
z = cos(3.*x).*sin(2.*y).*exp(-0.5.*((x-pi).^2+(y-pi).^2));

figure
surf(x,y,z);
colormap hsv
colorbar

figure
[C,h] = contour(x,y,z);
clabel(C,h);
```
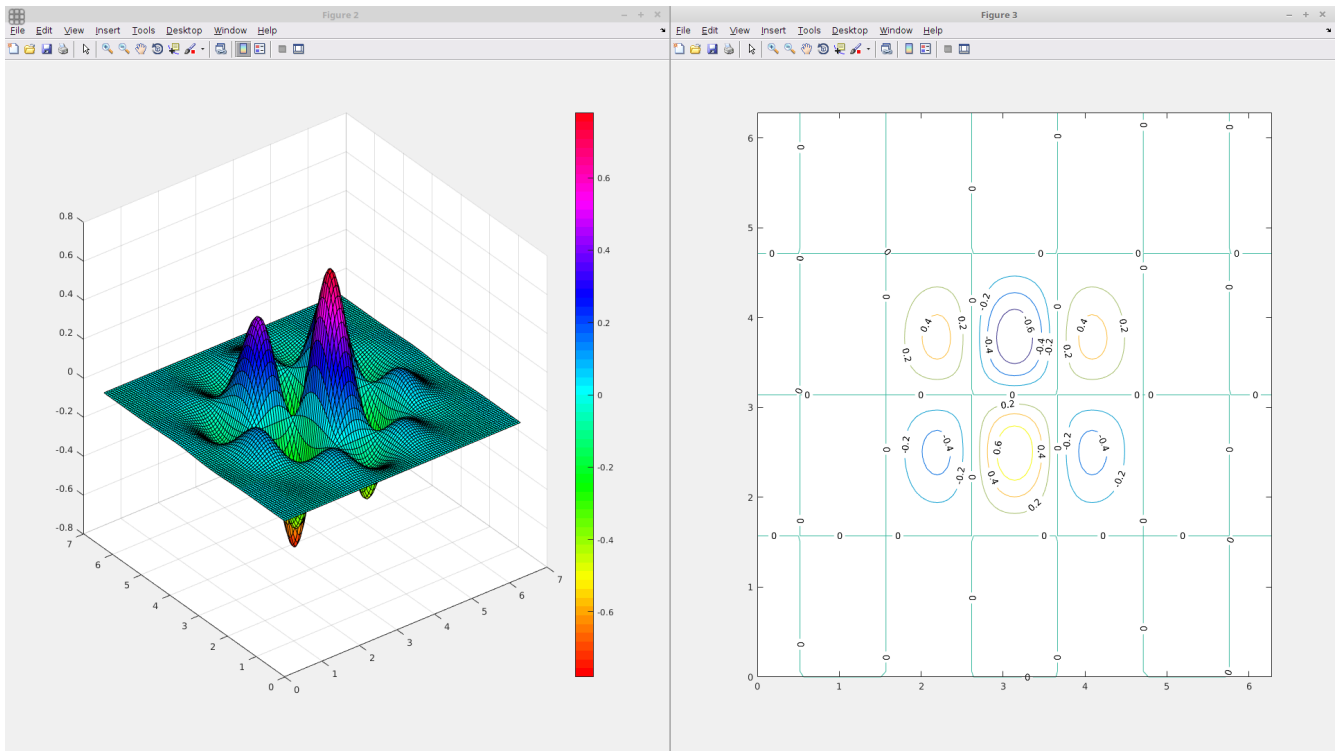
7)

```matlab
function z = func1_HW1_7(t)
z = sin(t).*sin(3.*t);
end

function z = func2_HW1_7(t)
z = cos(t).*sin(6.*t);
end

t = [0:0.02*pi:2*pi];

y1 = func1_HW1_7(t);
y2 = func2_HW1_7(t);


figure
plot(t,y1)
hold on;
plot(t,y2)
```