```
% MA202: Assignment 1
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% 202051088
```

```
%Q1
a = 1.2 ;
b = 2.3;
c = 4.5;
d = 4;
a^3 + (b*d)^(1/2)-4*c
```

```
ans = -13.2388
```

```
%Q2 a)
Array = ones(1,10)
```

```
Array = 1×10
     1     1     1     1     1     1     1     1     1     1
```

```
%b)
Arr = [2,3,0,0,0,0,0,0,0,0]
```

```
Arr = 1×10
     2     3     0     0     0     0     0     0     0     0
```

```
%Q3
A = [4,-6;6,10];
B = [6,-13;3.4,16];

M1=A+B
```

```
M1 = 2×2
   10.0000  -19.0000
    9.4000   26.0000
```

```
M2=B^2
```

```
M2 = 2×2
   -8.2000 -286.0000
   74.8000  211.8000
```

```
M3=A*B
```

```
M3 = 2×2
    3.6000 -148.0000
   70.0000   82.0000
```

```
M4=transpose(A*B)
```

```
M4 = 2×2
    3.6000   70.0000
 -148.0000   82.0000
```

```
M5=A-B
```

```
M5 = 2×2
   -2.0000    7.0000
    2.6000   -6.0000
```

```
M6=A/B
```

```
M6 = 2×2
    0.6020    0.1141
    0.4422    0.9843
```

```
M7=A*inv(B)
```

```
M7 = 2×2
    0.6020    0.1141
    0.4422    0.9843
```

```
M8=inv(A)
```

```
M8 = 2×2
    0.1316    0.0789
   -0.0789    0.0526
```

```
%Q4
A = [5,6,10;3,0,14;0,7,21];
B = [4, 10, 0];
X = B*inv(A)
```

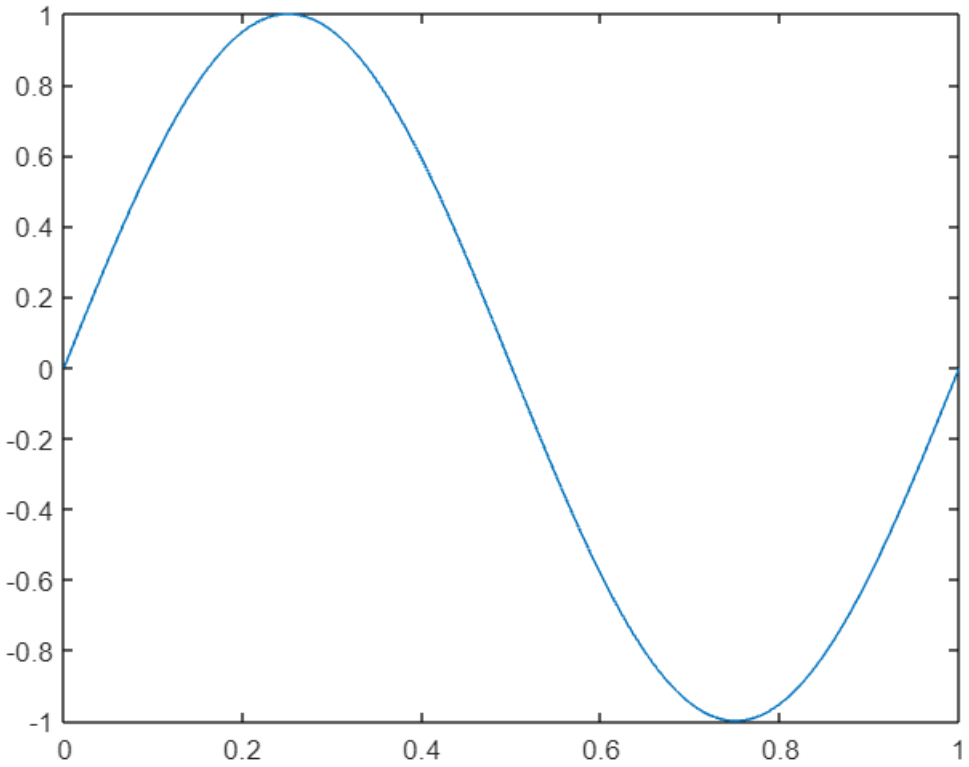
```
X = 1×3
    1.5532   -1.2553    0.0973
```

```
%Q5
for X = 1:30
 if sin(X)<0
 fprintf('Value of Integer is %d\n', X);
 end
end
```

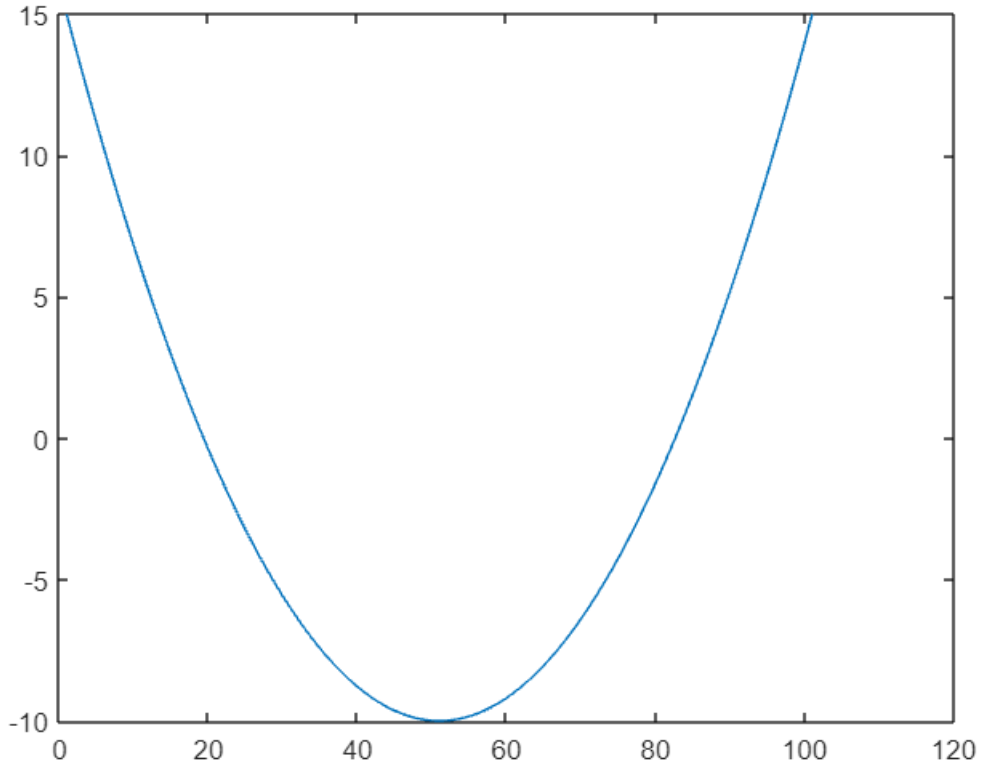
```
Value of Integer is 4
Value of Integer is 5
Value of Integer is 6
Value of Integer is 10
Value of Integer is 11
Value of Integer is 12
Value of Integer is 16
Value of Integer is 17
Value of Integer is 18
Value of Integer is 22
Value of Integer is 23
Value of Integer is 24
Value of Integer is 25
Value of Integer is 29
Value of Integer is 30
```

```
%Q6
```

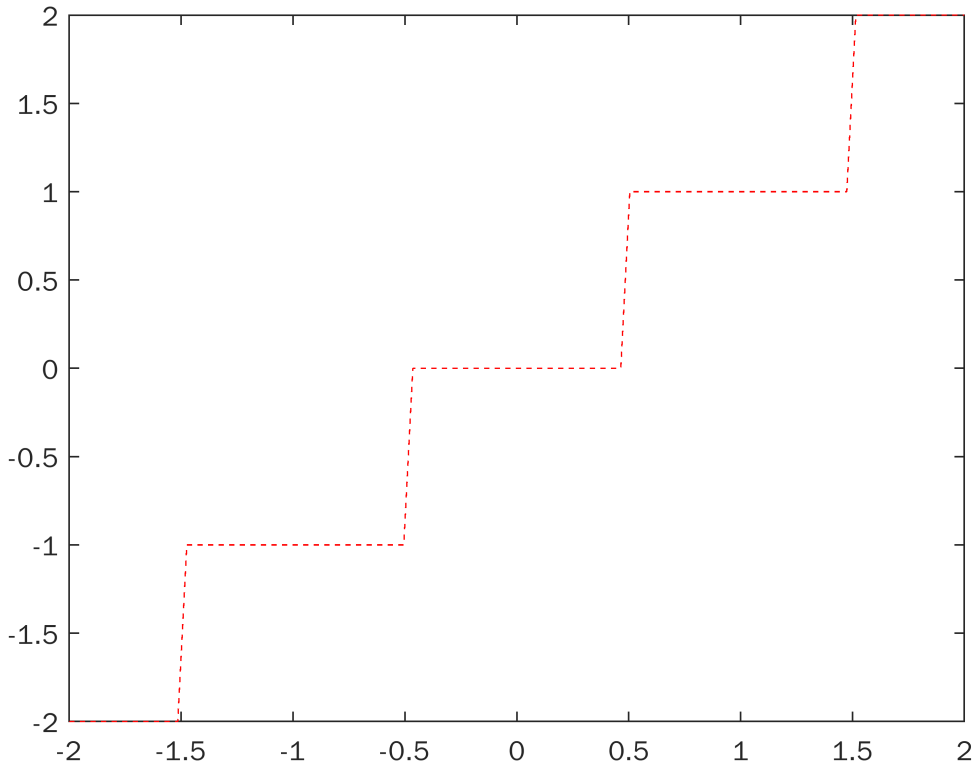
```
%a
t = 0:0.001:1;
x = 2*3.14*t;
0<= x <= 2*3.14;
y= sin(x);
plot(t,y)
```




```
%b
x = [0:0.1:10];
y = x.^2-10*x+15;
plot(y)
```




```
%c
clear variable;
close all;
clc;
n = linspace(-2,2);
h = round(n);
plot(n,h, 'r--');
```




```
%Q7
syms x
A = sym([3 2 -2;-3 -1 3;1 2 0]);
pA = charpoly(A,x)
```

pA = $x^3 - 2x^2 - x + 2$

```
r = roots(pA)
```

```
r =

Empty sym: 0-by-1
```

```
disp("Eigen values: ")
```

```
Eigen values:
```

```
e=eig(A)
```

e =

$$\begin{pmatrix} -1 \\ 1 \\ 2 \end{pmatrix}$$

```
[X,Y,Z] = eig(A);
```

```
disp("Right Eigen Vector:")
```

```
Right Eigen Vector:
```

```
disp(X);
```

$$\begin{pmatrix} 1 & 0 & 1 \\ 0 & 1 & -1 \\ 1 & 1 & 1 \end{pmatrix}$$

```
disp("Left Eigen Vector: ");
```

```
Left Eigen Vector:
```

```
disp(Y);
```

$$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & -1 \end{pmatrix}$$

```
%Q8
%a
C = [ 10, 15, 20, 25, 30, 35, 40, 45, 50, 55]
```

```
C = 1×10
    10    15    20    25    30    35    40    45    50    55
```

```
%b
F= zeros(10,1);
for i = 1:10
    F(i)= C (i)*1.8 +32;
end
F
```

```
F = 10×1
    50
    59
    68
    77
    86
    95
   104
   113
   122
   131
```

```
%c
Matrix = zeros(10,2);
for i = 1:10
    Matrix (i,1) = C(i);
end
for i=1:10
Matrix(i,2) = F(i);
end
Matrix
```

```
Matrix = 10×2
    10    50
    15    59
    20    68
    25    77
    30    86
    35    95
    40   104
    45   113
    50   122
    55   131
```

```
%Q9
disp("In fahrenheit : ")
```

```
In fahrenheit :
```

```
F= (C* 9.0/5.0) +32;
disp(F)
```

```
    50    59    68    77    86    95   104   113   122   131
```

```
%Q10
n=input('n:')
fact = 1;
for i =1:n
    fact = fact*i;
    fact
end
```

```
%Q 11
x= -3;
if x>0
str='positive';

elseif x<0
str='negative';
elseif x== 0
str='zero';
else str='error';
end
disp("the value of str is: ")
```

```
the value of str is:
```

```
disp(str)
```

```
negative
```

```
%Q12
x=-10;
while x < 0
x=x+1;
```

```
x
end
```

```
x = -9
x = -8
x = -7
x = -6
x = -5
x = -4
x = -3
x = -2
x = -1
x = 0
```

```
%Q13
X=0;
for i=1:10
X=X+1;
X
end
```

```
X = 1
X = 2
X = 3
X = 4
X = 5
X = 6
X = 7
X = 8
X = 9
X = 10
```

```
%Q14
n=input('n:')
```

```
n = 15
```

```
sum=0;
for i=1:n
sum=sum+i;
sum
end
```

```
sum = 1
sum = 3
sum = 6
sum = 10
sum = 15
sum = 21
sum = 28
sum = 36
sum = 45
sum = 55
sum = 66
sum = 78
sum = 91
sum = 105
sum = 120
```

```
% Q.15
x=-10;
while x < 0
x=x+2;
if x == -2
break;
end
end
disp("value of x is: ");
```

```
value of x is:
```

```
disp(x);
```

```
    -2
```

```
%Q16
x =[1,3,5,10];
y = addeven(x)
```

```
y = 13
```

```
    function y = addeven(x)
a = length(x);
sum = 0;
for i = 1:a
    if (mod(i,2)==0)
        sum = sum + x(i);
    end
end
y = sum;
end
```