Variable assignment:

```
a = 1;
b = 2;
```

comments:

```
% one % could be used to convert one-line statement into comment.
%{
a = 2;
b = 3;
%}
a
```

```
a = 1
```

```
b
```

```
b = 2
```

```
%{
this could be used to convert multi-line statements into comments.
%}
```

display variable:

```
a = 1;
disp(a)
```

```
     1
```

```
fprintf('a is %d:',a)
```

```
a is 1:
```

```
a
```

```
a = 1
```

elementary math

```
x = pi*3/4;
y = sin(x);
y
```

```
y = 0.7071
```

matrices:

Row vector:

```
RowVec = [1,2,3]
```

```
RowVec = 1×3
     1     2     3
```

```
size(RowVec)
```

```
ans = 1×2
     1     3
```

Column vector:

```
ColVec = [1;2;3]
```

```
ColVec = 3×1
     1
     2
     3
```

```
size(ColVec)
```

```
ans = 1×2
     3     1
```

Matrix:

```
mat = [1, 2, 3; 4, 5, 6; 7, 8, 9]
```

```
mat = 3×3
     1     2     3
     4     5     6
     7     8     9
```

```
size(mat)
```

```
ans = 1×2
     3     3
```

Get matrix element value:

```
mat(2,3) % the index starts from 1, not 0
```

```
ans = 6
```

Basic linear algebra:

ColVec*RowVec:

```
ColVec*RowVec
```

```
ans = 3×3
     1     2     3
     2     4     6
     3     6     9
```

RowVec*RowVec

```
RowVec*ColVec
```

```
ans = 14
```

Control flow:

for:

```
for i = 1:2:20
    disp(2*i)
end
```

```
     2

     6

    10

    14

    18

    22

    26

    30

    34

    38
```

while:

```
start = 1;
step = 3;
N = start;
while(N<=20)
    disp(N)
    N = N+step;
end
```

```
     1

     4

     7

    10

    13

    16

    19
```

Vectorization

```
x1 = 1:2:10;
x2 = linspace(1,10,5);
fprintf('x1 is:')
```

```
x1 is:
```

```
disp(x1)
```

```
     1     3     5     7     9
```

```
fprintf('x2 is:')
```

```
x2 is:
```

```
disp(x2)
```

```
    1.0000    3.2500    5.5000    7.7500   10.0000
```

```
fprintf('x1^2 is:')
```

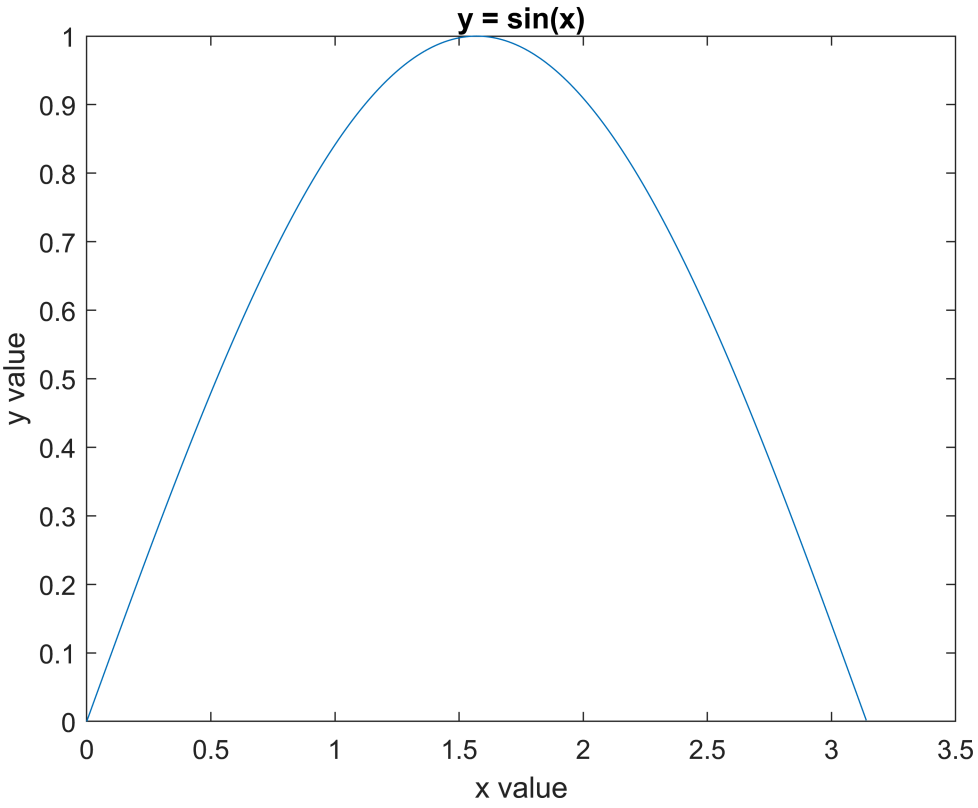
```
x1^2 is:
```

```
disp(x1.^2)
```

```
     1     9    25    49    81
```

Basic plotting

```
x = 0:0.01:pi;
y = sin(x);
plot(x,y)
title('y = sin(x)')
xlabel('x value')
ylabel('y value')
```



If- else

```
if 3 > 2
    disp('yes of course!')
else
    disp('???')
end
```

```
yes of course!
```

Important: getting help from official document:

```
doc('sin')
doc('linspace')
```