Octave Lab Practical Sheet- 02

01)

```
octave:1> sqrt(98)
ans = 9.8995
octave:2> 98^0.5
ans = 9.8995
octave:3> 98^1/2
ans = 49
octave:4> 98^(1/2)
ans = 9.8995
```

02)

```
octave:7> y = 25
y = 25
octave:8> mod(sqrt(y), 1) == 0
ans = 1
```

03)

```
octave:9> words = {"if", "when", "while", "how", "which", "catch", "
try", "until", ...
>     "spmd", "spot", "partfor", "for", "global", "else", "e", "pi",
 ...
>     "__FINE__", "__LINE__", "break", "broke", "function"};
octave:10> cellfun(@iskeyword, words)
ans =

  1  0  1  0  0  1  1  1  1  0  0  1  1  1  0  0  0  1  1  0  1
```

04)

```
octave:11> a = 5;
octave:12> b = [1, 2, 3];
octave:13> c = eye(3);
octave:14> who
Variables visible from the current scope:

a           b           is_integer  y
ans         c           words

octave:15> whos
Variables visible from the current scope:

variables in scope: top scope

  Attr   Name            Size                     Bytes  Class
  ====   ====            ====                     =====  =====
         a               1x1                          8  double
         ans             1x21                        21  logical
         b               1x3                         24  double
         c               3x3                         24  double
         is_integer      1x1                          8  double
         words           1x21                        97  cell
         y               1x1                          8  double

Total is 57 elements using 190 bytes
```

05)

```
octave:16> x = 5;
octave:17> y = [1, 2; 3, 4];
octave:18> whos
Variables visible from the current scope:

variables in scope: top scope

  Attr   Name           Size                     Bytes  Class
  ====   ====           ====                     =====  =====
         a              1x1                          8  double
         ans            1x21                        21  logical
         b              1x3                         24  double
         c              3x3                         24  double
         is_integer     1x1                          8  double
         words          1x21                        97  cell
         x              1x1                          8  double
         y              2x2                         32  double

Total is 61 elements using 222 bytes
```

Bytes it takes is different

06)-15)

```
octave:19> inf / 5
ans = Inf
octave:20> inf / 0
ans = Inf
octave:21> inf / -5
ans = -Inf
octave:22> inf / (3 + 2i)
ans =  Inf - Infi
octave:23> inf / inf
ans = NaN
octave:24> inf^2
ans = Inf
octave:25> sqrt(inf)
ans = Inf
octave:26> inf + inf
ans = Inf
octave:27> inf * inf
ans = Inf
octave:28> inf - inf
ans = NaN
octave:29> sqrt(-inf)
ans =    0 + Infi
octave:30> inf^inf
ans = Inf
octave:31> inf / i
ans =  NaN - Infi
octave:32>
```

16-17)

clc - Clears the command window

clear - Clears all variables in the workspace

18)

```
octave:32> format short
octave:33> pi + exp(1)
ans = 5.8599
octave:34> format long
octave:35> pi + exp(1)
ans = 5.859874482048838
octave:36>
```

19)-20)

```
octave:36> X = [2, 3; 4, 1];
octave:37> A = [3, 4, 10; 70, 1, 30];
octave:38> Z = [2, 3; 50, 49; 0, 1];
octave:39> Y = eye(3);
octave:40> X', A', Z', Y'
ans =

   2   4
   3   1

ans =

    3   70
    4    1
   10   30

ans =

    2   50    0
    3   49    1

ans =

Diagonal Matrix

   1   0   0
   0   1   0
   0   0   1
```

21)

```
octave:41> fliplr(X), fliplr(A), fliplr(Z), fliplr(Y)
ans =

   3   2
   1   4

ans =

   10    4    3
   30    1   70

ans =

    3    2
   49   50
    1    0

ans =

Permutation Matrix

   0   0   1
   0   1   0
   1   0   0
```

22)

```
octave:42> flipud(X), flipud(A), flipud(Z), flipud(Y)
ans =

   4   1
   2   3

ans =

   70    1   30
    3    4   10

ans =

    0    1
   50   49
    2    3

ans =

Permutation Matrix

   0   0   1
   0   1   0
   1   0   0
```

23)

```
octave:43> x = 7;
octave:44> y = x^2 - 6*x + 5
y = 12
octave:45>
```

24)

```
octave:45> linspace(5, 150, 11)
ans =

 Columns 1 through 3:

   5.00000000000000e+00   1.95000000000000e+01   3.40000000000000e+01

 Columns 4 through 6:

   4.85000000000000e+01   6.30000000000000e+01   7.75000000000000e+01

 Columns 7 through 9:

   9.20000000000000e+01   1.06500000000000e+02   1.21000000000000e+02

 Columns 10 and 11:

   1.35500000000000e+02   1.50000000000000e+02

octave:46>
```

25)

```
octave:46> logspace(log10(10), log10(1000), 7)
ans =

 Columns 1 through 4:

   1.00000000000000e+01   2.15443469003188e+01   4.64158883361278e+01   1.00000000000000e+02

 Columns 5 through 7:

   2.15443469003188e+02   4.64158883361278e+02   1.00000000000000e+03

octave:47>
```

26)-27)

```
octave:47> rand(3, 4)
ans =

   6.725063653755137e-01   1.011671840497689e-01   8.948052881785095e-01   7.096217243180654e-01
   1.873573197539464e-01   6.404872232410501e-01   5.704688811213230e-01   6.574449947305183e-02
   3.018858790930934e-02   4.287451913850090e-01   6.371832160644585e-01   6.310763978560484e-01

octave:48> random_matrix = rand(3, 4);
octave:49> random_matrix
random_matrix =

   6.105499506665842e-01   3.187941200028348e-01   8.469301953838573e-01   3.199306127636881e-01
   7.601176471123361e-02   5.993828451111667e-01   9.527972980394867e-01   7.328788025498859e-01
   8.460301142855641e-01   9.525848684528112e-01   8.055712677013771e-02   9.136393275912720e-01

octave:50>
```

28)

```
octave:50> x=0
x = 0
octave:51> x=x+25
x = 25
octave:52> x=x+25
x = 50
octave:53> x=x+25
x = 75
octave:54> x=x+25
x = 100
octave:55> x=x+25
x = 125
octave:56> x=x+25
x = 150
octave:57> x=x+25
x = 175
octave:58>
```

29)

```
octave:58> a=2,z=4
a = 2
z = 4
octave:59> a=5,z=3
a = 5
z = 3
octave:60> a=2,z=4
a = 2
z = 4
octave:61> a=3,z=7
a = 3
z = 7
octave:62> a=2,z=4
a = 2
z = 4
octave:63> a=3,z=7
a = 3
z = 7
octave:64> a=2,z=4
a = 2
z = 4
octave:65>
```

30)

```
octave:65> inv([2, 3; 4, 5])
ans =

  -2.500000000000000   1.500000000000000
   2.000000000000000  -1.000000000000000
```

31)-32)

```
octave:66> y = eye(12);
octave:67> det_y = det(y)
det_y = 1
octave:68>
```

33)

```
octave:68> az = 2:7:98
az =

    2    9   16   23   30   37   44   51   58   65   72   79   86   93
```

34)

```
octave:69> k = [2, 3, 7; 8, 3, 4];
octave:70> m = rot90(k, 3)
m =

   8   2
   3   3
   4   7
```

35)

```
octave:76> w = [1, 0, 1; 2, 3, 5];
octave:77> reshape(w, 6,1)
ans =

   1
   2
   0
   3
   1
   5
```

36)

File Edit View Debug Run Help

<unnamed>

```
1  H = [2,3;4,5]
2  K = [1,0;5,6]
3  V = H*K
4  V - [1,1;2,3]
```

Workspace

Filter

Name	Class	Dimension	Value	Attribute
H	double	2x2	[2, 3; 4, 5]	
K	double	2x2	[1, 0; 5, 6]	
V	double	2x2	[17, 18; 29, 30]	
ans	double	2x2	[16, 17; 27, 27]	

```
>> example

H =

   2   3
   4   5

K =

   1   0
   5   6

V =

   17   18
   29   30

ans =

   16   17
   27   27
```