

Octave

Octave is an interactive programming language specifically suited for quick numerical calculations. It provides a high level interface to many standard libraries of numerical mathematics.

Some basic commands:

Calculations:

```
>> 2 + 2
ans = 4
>> 3 * 5
ans = 15
>> 4 / 9
ans = 0.44444
>>
>> 5 - 3
ans = 2
>> a=3
a = 3
>> b=5;
>> c=a+b;
>> disp(c);
8
>> d=pi;
>> disp(sprintf('c*d = %f',c*d))
c*d = 25.132741
>> b=rand(1,1)
b = 8087/12721
```

Formats:

```
>> a = pi
a = 3.1416
>> format long
>> a
a = 3.14159265358979
>> format short
>> a
a = 3.1416
>> format long e
>> pi
ans = 3.14159265358979e+00
>> format short e
>> pi
ans = 3.1416e+00
>> format bank
>> pi
ans = 3.14
>> format rat
>> pi
ans = 355/113
```

Matrix and Vector:

```
>> A = [1 2 3; 3 4 5; 7 8 9]
```

```
A =
```

```
1 2 3
3 4 5
7 8 9
```

```
>> B = [7 8 4; 5 6 9; 2 3 4]
```

```
B =
```

```
7 8 4
5 6 9
2 3 4
```

```
>> C = A * B;
```

```
>> disp(C)
```

```
23 29 34
51 63 68
107 131 136
```

Vector:

```
>> A = [1 2 3 4 5]           % Row Vector
```

```
A =
```

```
1      2      3      4      5
```

```
>> B = [ 1 ; 2 ; 3 ; 4 ; 5]   % Column Vector
```

```
B =
```

```
1
2
3
4
5
```

Default variable/costant:

```
>> pi           % Value of Pi
```

```
ans = 3.1416
```

```
>> ans          % Answer for previous operation
```

```
ans = 3.1416
```

```
>> Inf          % Value of Inf
```

```
ans = Inf
```

```
>> eps          % Floating point precision
```

```
ans = 2.2204e-16
```

```
>> NaN          % Not a number
```

```
ans = NaN
```

Showing Variable list

```
>> a=5;  
>> b=3;  
>> c=a+b;  
>> who
```

Variables in the current scope:

a b c

```
>> whos
```

Variables in the current scope:

Attr	Name	Size	Bytes	Class
====	=====	=====	=====	=====
	g a	1x1	8	double
	b	1x1	8	double
	c	1x1	8	double

Total is 3 elements using 24 bytes

Some Additional Commands

```
>> clc                % Clear current window  
>> clear              % Clear variable memory  
>> exist (NAME)       % Check file or variable existence  
>> global a = 5;      % Declare global variable  
>> help (CMD NAME)    % For help
```