

# Practical Sheet 01

1.

```
GNU Octave, version 9.2.0
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FITNESS FOR A PARTICULAR PURPOSE. For details, type 'warranty'.

Octave was configured for "x86_64-w64-mingw32".

Home page:      https://octave.org
Support resources: https://octave.org/support
Improve Octave: https://octave.org/get-involved

For changes from previous versions, type 'news'.

octave:1> 7+3
ans = 10
octave:2> 89-9
ans = 80
octave:3> 4*7
ans = 28
octave:4> 88/22
ans = 4
octave:5> 3/7
ans = 0.4286
octave:6> 5^5
ans = 3125
octave:7>
```

2.

```
For changes from previous versions, type 'news'.

octave:1>
octave:1> 9^2+7^3*(3+8-9/3)*2^3
ans = 22033
octave:2> 8^2-7*2*(8+6)/2
ans = -34
octave:3> 2+3-5*6/(7-5)^5
ans = 4.0625
octave:4> 3*9/3-7^4*(7-3)
ans = -9595
```

3.

```

octave:5> 7-66+4*cos(0)
ans = -55
octave:6> cos(0)*33/3-67+8
ans = -48
octave:7> cos(0) + cos(0) + cos(0)
ans = 3
octave:8> 5600^cos(0)
ans = 5600
octave:9> 55 + 7/cos(0)
ans = 62

```

4.

```

octave:10> 78/sin(0)
ans = Inf
octave:11> 3/sin(0)
ans = Inf
octave:12> 5000000/sin(0)
ans = Inf
octave:13> 6.789789789/sin(0)
ans = Inf

```

5.

```

octave:14> w = [5,6,7;8,10,62;23,4,7]
w =
     5     6     7
     8    10    62
    23     4     7

octave:15> z = [9,8;4,5]
z =
     9     8
     4     5

octave:16> t = [7,6,5; 4,3,2]
t =
     7     6     5
     4     3     2

octave:17> a = [9,3,4; 5,8,7]
a =
     9     3     4
     5     8     7

octave:18> b = [7,5,3; 8,1,2]
b =
     7     5     3
     8     1     2

octave:19> a+b
ans =
    16     8     7
    13     9     9

```

6. 7.

```
octave:100> a = [9,3,4; 5,8,7]
```

```
a =
```

```
    9    3    4  
    5    8    7
```

```
octave:101> b = [7,4,3; 8,7,2]
```

```
b =
```

```
    7    4    3  
    8    7    2
```

```
octave:102> a+b
```

```
ans =
```

```
   16    7    7  
   13   15    9
```

```
octave:103> a = [2,3,4; 5,6,7]
```

```
a =
```

```
    2    3    4  
    5    6    7
```

```
octave:104> b = [7,5,3; 8,1,2]
```

```
b =
```

```
    7    5    3  
    8    1    2
```

```
octave:105> a-b
```

```
ans =
```

```
   -5   -2    1  
   -3    5    5
```

```
octave:106>
```

8.

```
octave:20> 3i + 7 + 4i + 8
```

```
ans = 15 + 7i
```

```
octave:21> 3j + 9i + 3j + 7 + 8i
```

```
ans = 7 + 23i
```

9.

```
octave:22> 3i * 5
ans = 0 + 15i
octave:23> 7j*6i
ans = -42
octave:24> 4i * 8j
ans = -32
octave:25> 3 * 7i
ans = 0 + 21i
octave:26> 71j * 10
ans = 0 + 710i
octave:27> 3 * 9
ans = 27
```

```
octave:28> log10(10)
ans = 1
octave:29> log10(2)
ans = 0.3010
octave:30> log10(-3)
ans = 0.4771 + 1.3644i
octave:31> log10(2) * log10(2)
ans = 0.090619
```

10.

```
octave:32> -7/i
ans = 0 + 7i
octave:33> -8/4i
ans = 0 + 2i
octave:34> -6j/3i
ans = -2
octave:35> -8/64j
ans = 0 + 0.1250i
octave:36>
```

11.

```
octave:36> [2, 4, 5, 7] - [1, 0, 1, 3]
ans =
```

```
1 4 4 4
```

```
octave:37> [4, 3, 6, 3] + [2, 0, 1, 7]
ans =
```

```
6 3 7 10
```

```
octave:38> [2, 3, 5] - [0, 0, 1]
ans =
```

```
2 3 4
```

```
octave:39> [4, 3, 2] + [1, 1, 1]
ans =
```

```
5 4 3
```

12.

```
octave:40> [2i, 4i, 3] * 6i
ans =
```

```
-12 + 0i -24 + 0i 0 + 18i
```

```
octave:41> [3, 9, 8j] / 4j
ans =
```

```
0 - 0.7500i 0 - 2.2500i 2.0000 + 0i
```

```
octave:42> [-4, -5i, -8] / 4i
ans =
```

```
0 + 1.0000i -1.2500 + 0i 0 + 2.0000i
```

```
octave:43> [-9, -6, -3] * 2j
ans =
```

```
0 - 18i 0 - 12i 0 - 6i
```

13.

```
octave:44> log(2)
```

```
ans = 0.6931
```

```
octave:45> log10(2)
```

```
ans = 0.3010
```

14.

## 15. 16 17

```
octave:46> (3^2 + 7*5 - 9/3) / (4^2 - 3*(8 - 7/2) + 6)
ans = 4.8235
octave:47> ((7^3 - 5^2 * (3 + 2^4)) / (4 + 3^3)) ^ (1/3) + log10(100) * sin(pi/6)
ans = 1.8104 + 1.4037i
octave:48> A = [2, 4, 6; 8, 10, 12; 14, 16, 18];
octave:49> B = [1, 3, 5; 7, 9, 11; 13, 15, 17];
octave:50> A+B
ans =

    3    7   11
   15   19   23
   27   31   35

octave:51> A-B
ans =

    1    1    1
    1    1    1
    1    1    1

octave:52> A*B
ans =

   108   132   156
   234   294   354
   360   456   552
```

## 18

```
octave:53> log10(-5+3i)\log_{10}(-5 + 3i)log10(-5+3i)
error: parse error:

    syntax error

>>> log10(-5+3i)\log_{10}(-5 + 3i)log10(-5+3i)
      ^
octave:53> e(4+5i)e^{(4 + 5i)}e(4+5i)
error: parse error:

    syntax error

>>> e(4+5i)e^{(4 + 5i)}e(4+5i)
      ^
octave:53> sin(5+2i)\sin(5 + 2i)sin(5+2i)
error: parse error:

    syntax error
```

19.

```
octave:53> A = [2, 4, 6; 8, 10, 12; 14, 16, 18];
octave:54> B = [1, 3, 5; 7, 9, 11; 13, 15, 17];
octave:55> A+B
ans =

     3     7    11
    15    19    23
    27    31    35

octave:56> A*B
ans =

   108   132   156
   234   294   354
   360   456   552

octave:57> A-B
ans =

     1     1     1
     1     1     1
     1     1     1
```

```
octave:59> diff1 = log10(100) - log(100);
octave:60> diff1
diff1 = -2.6052
octave:61> diff2 = log10(2.71828) - log(2.71828);
octave:62> diff2
diff2 = -0.5657
```

20.

```
octave:63> 15 + 25
ans = 40
octave:64> 350 - 125
ans = 225
octave:65> 18 * 12
ans = 216
octave:66> 55 / 8
ans = 6.8750
octave:67> 3 ^ 8
ans = 6561
octave:68> 12^2 - 8*(15 - 4) + 3^4
```

21.

22

```
octave:68> 12^2 - 8*(15 - 4) + 3^4
ans = 137
octave:69> 5^3 + (25/5) * (9 - 3^2)
ans = 125
octave:70> (7 + 4) * ((3^2 - 5) / 2) + 10
ans = 32
```

23.

```
octave:71> cos(pi/4)
ans = 0.7071
octave:72> sin(pi/3) + tan(pi/6)
ans = 1.4434
octave:73> 2 * cos(pi/3) - 3 * sin(pi/6)
ans = -0.5000
octave:74>
```

```
octave:78> [1, 3, 5; 7, 9, 11]
ans =

     1     3     5
     7     9    11
```

```
octave:79> A = [3, 5; 7, 9];
octave:80> B = [1, 2; 4, 8];
octave:81> A+B
```

```
ans =

     4     7
    11    17
```

```
octave:82> X = [9, 8; 6, 4];
octave:83> Y = [3, 2; 1, 0];
octave:84> X-Y
```

```
ans =

     6     6
     5     4
```

```
octave:85> [2, 3; 4, 6] *5
ans =
```

```
    10    15
    20    30
```

24.



25.

```
octave:87> [12, 24, 36] ./ [3, 6, 9]
ans =

    4    4    4

octave:88> (5 + 3i) + (2 - 4i)
ans =  7 - 1i
octave:89> (9 + 7i) - (3 + 2i)
ans =  6 + 5i
octave:90> (2 + 3i) * (4 - 5i)
ans = 23 + 2i
octave:91> log10(100)
ans = 2
octave:92> log(exp(1))
ans = 1
octave:93> log(20) * log10(10)
ans = 2.9957
octave:94> [10, 20, 30] + [5, 15, 25]
ans =

   15   35   55

octave:95> [50, 60, 70] - [10, 20, 30]
ans =

   40   40   40

octave:96> 4 * [1, 2, 3]
ans =

    4    8   12

octave:97> [2i, 3i, 4]*2
ans =

    0 + 4i    0 + 6i    8 + 0i

octave:98> [6i, 9i, 12]/3
ans =

    0 + 2i    0 + 3i    4 + 0i

octave:99> [1, 2, 3] + [2i, 3i, 4i]
ans =

    1 + 2i    2 + 3i    3 + 4i

octave:100> -
```