

GNU Octave, version 3.4.0

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Octave was configured for "x86_64-apple-darwin10.7.3".

Additional information about Octave is available at <http://www.octave.org>.

Please contribute if you find this software useful.

For more information, visit <http://www.octave.org/help-wanted.html>

Read <http://www.octave.org/bugs.html> to learn how to submit bug reports.

For information about changes from previous versions, type 'news'.

```
octave-3.4.0:1> x=[1;3;7]
```

```
x =
```

```
1
```

```
3
```

```
7
```

```
octave-3.4.0:2> A=[1,2,3;4,5,6;1,9,7 ]
```

```
A =
```

```
1  2  3
```

```
4  5  6
```

```
1  9  7
```

```
octave-3.4.0:3> x=[1;3;7]
```

```
x =
```

```
1
```

```
3
```

```
7
```

```
octave-3.4.0:4> x=[1,3,7]
```

```
x =
```

```
1  3  7
```

```
octave-3.4.0:5> x=[1;3;7]
```

```
x =
```

```
1
```

```
3
```

```
7
```

```
octave-3.4.0:6> x(3)
```

```
ans = 7
```

```
octave-3.4.0:7> A(2,3)
```

```
ans = 6
```

```
octave-3.4.0:8> A
```

```
A =
```

```
1 2 3
```

```
4 5 6
```

```
1 9 7
```

```
octave-3.4.0:9> A*x
```

```
ans =
```

```
28
```

```
61
```

```
77
```

```
octave-3.4.0:10> y=[1,2,3]
```

```
y =
```

```
1 2 3
```

```
octave-3.4.0:11> A*y
```

```
error: operator *: nonconformant arguments (op1 is 3x3, op2 is 1x3)
```

```
octave-3.4.0:11> eye(3)
```

```
ans =
```

Diagonal Matrix

```
1 0 0
```

```
0 1 0
```

```
0 0 1
```

```
octave-3.4.0:12> zeros(3)
ans =
```

```
  0  0  0
  0  0  0
  0  0  0
```

```
octave-3.4.0:13> ones(3)
ans =
```

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

```
octave-3.4.0:14> ones(3)*5
ans =
```

```
  5  5  5
  5  5  5
  5  5  5
```

```
octave-3.4.0:15> E21=ones(3)
E21 =
```

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

```
octave-3.4.0:16> E21=eye(3)
E21 =
```

Diagonal Matrix

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

```
octave-3.4.0:17> E21(2,1)=-3
E21 =
```

```
  1  0  0
 -3  1  0
  0  0  1
```

```
octave-3.4.0:18> help eye
```

'eye' is a built-in function

```
-- Built-in Function: eye (X)
-- Built-in Function: eye (N, M)
-- Built-in Function: eye (... , CLASS)
Return an identity matrix. If invoked with a single scalar
argument, 'eye' returns a square matrix with the dimension
specified. If you supply two scalar arguments, 'eye' takes them
to be the number of rows and columns. If given a vector with two
elements, 'eye' uses the values of the elements as the number of
rows and columns, respectively. For example:
```

```
eye (3)
=>  1  0  0
    0  1  0
    0  0  1
```

The following expressions all produce the same result:

```
eye (2)
==
eye (2, 2)
==
eye (size ([1, 2; 3, 4]))
==
eye (2, 2)
==
eye (size ([1, 2; 3, 4]))
eye (2, 2)
==
eye (size ([1, 2; 3, 4]))
```

The optional argument CLASS, allows 'eye' to return an array of the specified type, like

```
val = zeros (n,m, "uint8")
```

Calling 'eye' with no arguments is equivalent to calling it with an argument of 1. This odd definition is for compatibility with MATLAB.

```
octave-3.4.0:19> zeros(3,2)
```

```
ans =
```

```
0  0
0  0
0  0
```

```
octave-3.4.0:20> x
```

```
x =
```

```
1
3
7
```

```
octave-3.4.0:21> x*x
```

```
error: operator *: nonconformant arguments (op1 is 3x1, op2 is 3x1)
```

```
octave-3.4.0:21> x'
```

```
ans =
```

```
1  3  7
```

```
octave-3.4.0:22> x'*x
```

```
ans = 59
```

```
octave-3.4.0:23> A
```

```
A =
```

```
1  2  3
4  5  6
1  9  7
```

```
octave-3.4.0:24> b=[1,;0;1]
```

```
b =
```

```
1
0
1
```

```
octave-3.4.0:25> Aaug=[A,b]
```

```
Aaug =
```

```
1  2  3  1
4  5  6  0
1  9  7  1
```

```
octave-3.4.0:26> [A;A]
ans =
```

```
1  2  3
4  5  6
1  9  7
1  2  3
4  5  6
1  9  7
```

```
octave-3.4.0:27> Aug
error: 'Aug' undefined near line 27 column 1
octave-3.4.0:27> Aaug
Aaug =
```

```
1  2  3  1
4  5  6  0
1  9  7  1
```

```
octave-3.4.0:28> Aaug=[A,eye(3)]
Aaug =
```

```
1  2  3  1  0  0
4  5  6  0  1  0
1  9  7  0  0  1
```

```
octave-3.4.0:29> M=rref(Aaug)
M =
```

```
1.00000  0.00000  0.00000 -0.63333  0.43333 -0.10000
0.00000  1.00000  0.00000 -0.73333  0.13333  0.20000
0.00000  0.00000  1.00000  1.03333 -0.23333 -0.10000
```

```
octave-3.4.0:30> Ainv=M(1:3,4:6)
Ainv =
```

```
-0.63333  0.43333 -0.10000
-0.73333  0.13333  0.20000
1.03333 -0.23333 -0.10000
```

```
octave-3.4.0:31> Ainv=M(:,4:6)
Ainv =
```

```
   -0.63333   0.43333  -0.10000
   -0.73333   0.13333   0.20000
    1.03333  -0.23333  -0.10000
```

```
octave-3.4.0:32> A*Ainv
ans =
```

```
   1.00000   0.00000   0.00000
   0.00000   1.00000   0.00000
   0.00000   0.00000   1.00000
```

```
octave-3.4.0:33> Ainv*A
ans =
```

```
   1.00000   0.00000   0.00000
   0.00000   1.00000   0.00000
  -0.00000   0.00000   1.00000
```