



1.5 Matlab

1.5.1 Matlab

1.5.2 Matlab

1.5.3





1.5 Matlab

Matlab

Math Works

Matlab

Matrix Laboratory(

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MathWork

Matlab

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Matlab





1.5.1 Matlab

1.

Matlab
Matlab

Matlab
“ ” Matlab
Matlab

Matlab Matlab

Matlab

3 × 3

A = [1 2 3 4 5 6 7 8 9]





Enter

Matlab

```
A =  
 1 2 3  
 4 5 6  
 7 8 9
```

```
B = inv (A)
```

Matlab

Matlab





2.

Matlab
Matlab

Matlab

Matlab

Matlab

“Figure No

” “ ”

figure

3.

Matlab





Matlab path

Matlab

path

Matlab

path ('C /MYFILES' path

C /MYFILES

Matlab

1.5.2 Matlab

Matlab

Fortran C

Matlab

1.

Matlab





Matlab

“ ”

Matlab

A

A a
inv (A)

Inv (A)

”

“

Matlab

A

A = [1 2 3
4 5 6
7 8 9]





Matlab

`format`

`x = [4/3 1.2345e - 6]`

`format short`

`1.3333 0.0000`

`format shorte`

`1.3333e + 00 1.2345e - 06`

`format long`

`1.3333333333333 0.00000123450000`

Format

Matlab





2. Matlab

%

A/B XA = B X

A\B AX = B X

A.*B A B

A.^B [A(i,j)^B(i,j)] A B

ones(m,n) 1 m × n

zeros(m,n) m × n

eye(n) n

A = [] A

J : K [j, j+1, j+2, ..., k]

J : i : K [j, j+i, j+2i, ..., k], j > k,





$A(:, j)$	$A \quad j$
$A(i, :)$	$A \quad i$
$A(j:k)$	$A(j), A(j+1), \dots, A(k)$
$A(:, j:k)$	$j \quad k$

3. Matlab

asin

acos

atan

sinh

cosh

tanh

sqrt





real

imag

round

floor

ceil

exp

e

log

e

bessel Bessel

beta

Beta

gamma

rat

erf





inv(A)

A

lu(A)

A

LU

det(A)

A

fmin

fmins

fzero

4. Matlab

plot

plot3

mesh

surf

title





xlabel x

ylabel y

text

gtext

grid

subplot

1.5.3

Matlab

Matlab = + M

Matlab

M M

. m M





1.

$$t = (-1, 0, 1, 3, 5)^T$$

Vandermonde

$$A = \begin{pmatrix} 1 & -1 & 1 & -1 & 1 \\ 0 & 0 & 0 & 0 & 1 \\ 1 & 1 & 1 & 1 & 1 \\ 81 & 27 & 9 & 3 & 1 \\ 625 & 125 & 25 & 5 & 1 \end{pmatrix}$$

$$n = \text{length}(t)$$





```

for j = 1 : n
    for i = 1 : n
        A(i, j) = t(i)^(n-j)
    end
end
end

```

Matlab

```

A(n, :) = ones(n, 1)
for j = n-1:-1:1
    A(j, :) = t.*A(j+1, :)
end
ones(n, 1)
n-1

```





2.

sqsum. m

function y = sqsum (x)

[m n] = size (x)

y = 0

for i = 1 m

for j = 1 n

y = y + x (i j) * x (i j)

end

end

M





$$A = [1 \ 2 \ 3 \ 4 \ 5]$$

$$\text{Asum} = \text{sqsum} \quad A$$

$$\text{Asum} = 55$$

$$B = [1 \ 1 \ 1 \ 6 \ 6 \ 6 \ 8 \ 8 \ 8]$$

$$\text{Bsum} = \text{sqsum} \quad B$$

$$\text{Bsum} = 303$$

3.

$$y = \frac{10}{1+x^2}, y = 5 + 4\sin x, x \in [-5,5],$$

fun1.m





```
function y = fun1 x
```

```
fun2.m
```

```
y = 10. / ( 1+x. ^2 );
```

```
function y = fun2 ( x )
```

```
y = 5 + 4 * sin ( x );
```

```
fig.m
```

```
x = -5 : 0.1: 5
```

```
y = fun1 ( x );
```

```
z = fun2 ( x );
```

```
plot ( x , y , x , z , ' - . ' );
```

```
fig,
```

```
,
```





Matlab



Matlab

