



AL-MUSTAQBAL UNIVERSITY COLLEGE

Department of Biomedical Engineering

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Computer Skills and Computing for BME 1

VECTORS

Vectors

*Length or size of an array A

. Length(A)

*Find an element in an array \square

A(i)

* i is the index of the i th element

*Replace an element' value with another

*A(i)=new_value

* Remark: the index of the first element of an array is 1.

```
Command Window
>> A=[5 3 9 4 6];
>> length(A)

ans =

     5

>> A(4)=9

A =

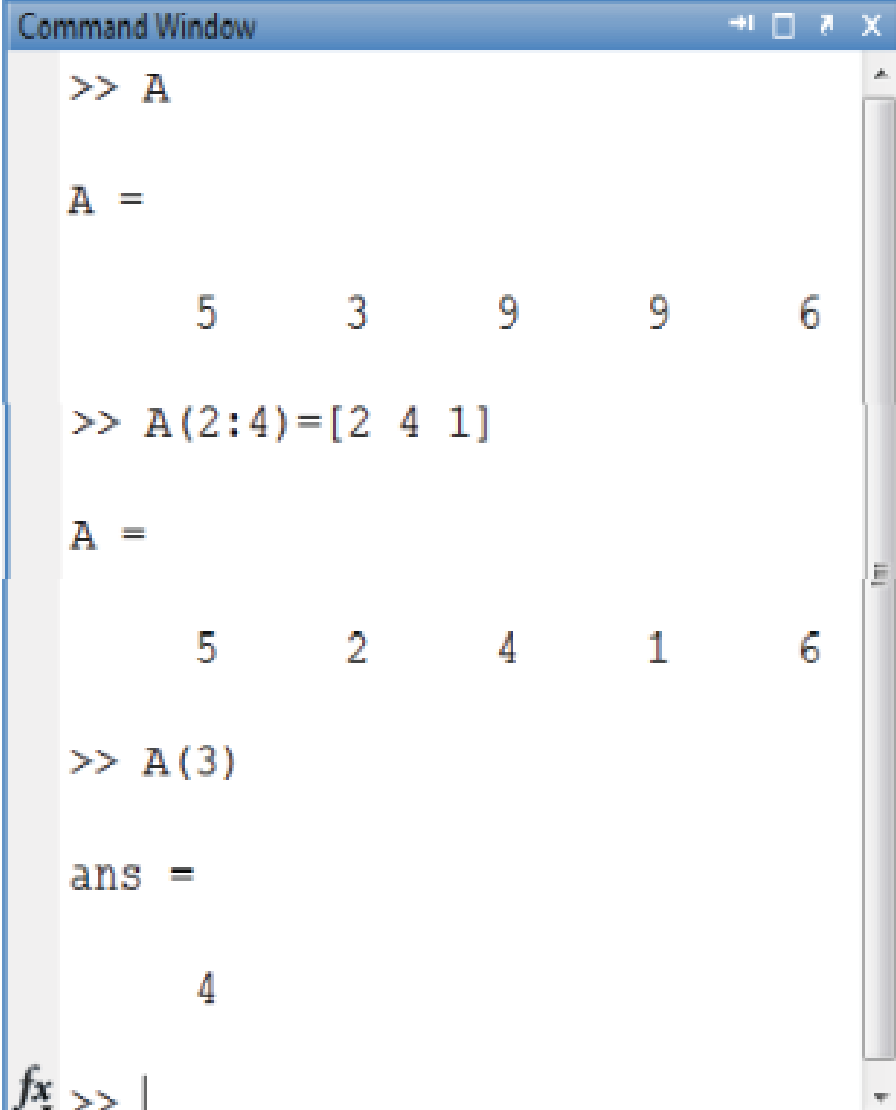
     5     3     9     9     6

fx >> |
```

❑ Replace values of a range of elements in an array using (:)

❑ Example

Extract the third element in an array A



```
Command Window
>> A
A =
     5     3     9     9     6
>> A(2:4)=[2 4 1]
A =
     5     2     4     1     6
>> A(3)
ans =
     4
fx >> |
```

❑ Extract the i th through the j th elements in an array

• $A(i : j)$

❑ Extract largest element in array A

$\max(A)$

❑ Extract minimal element in array A

$\min(A)$

```
Command Window
A =
     5     2     4     1     6

>> A(3:5)

ans =
     4     1     6

>> max(A)

ans =
     6

>> min(A)

ans =
     1

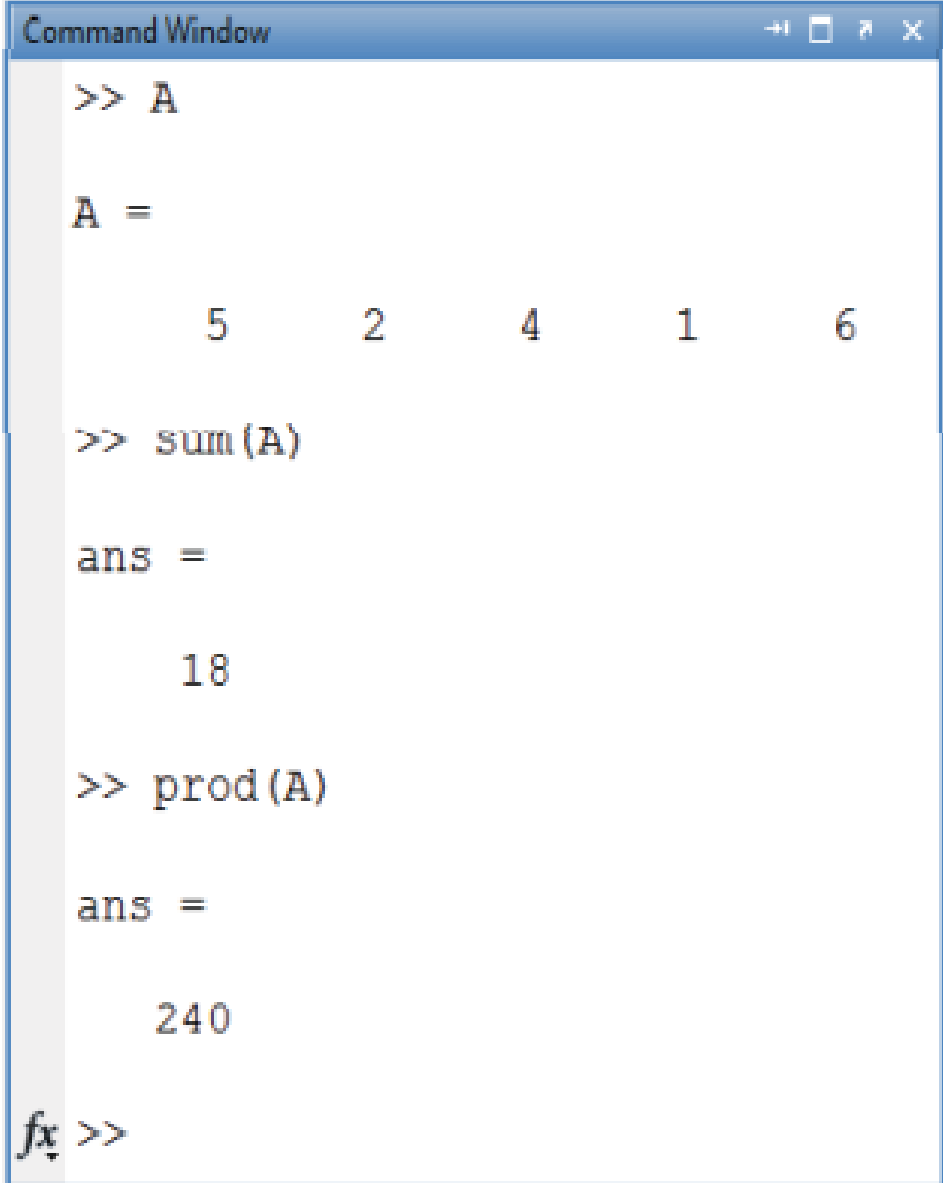
fx >>
```

□ Sum of array elements

`sum(A)`

□ Product of array elements

• `prod(A)`



```
Command Window
>> A
A =
     5     2     4     1     6
>> sum(A)
ans =
     18
>> prod(A)
ans =
     240
fx >>
```

❑ Add an element at the end of an array

```
Command Window
>> A
A =
     5     2     4     1     6

>> A(6)=3
A =
     5     2     4     1     6     3

>> length(A)
ans =
     6

>> A(length(A)+1)=8
A =
     5     2     4     1     6     3     8

fx >> |
```

Add set of elements at the end of an array

```
Command Window
>> A=[5 3 9 4 6]

A =

     5     3     9     4     6

>> A(6:8)=[3 8 7]

A =

     5     3     9     4     6     3     8     7

fx >> |
```

- ❑ Delete elements from an array
 - ❑ From the end

```
Command Window
>> A=[5 3 9 4 6]

A =

     5     3     9     4     6

>> A(5)=[]

A =

     5     3     9     4

>> A(3:4)=[]

A =

     5     3

fx >> |
```


- ❑ Delete elements from an array
- ❑ From anywhere

```
Command Window
>> A=[5 3 9 4 6]

A =

     5     3     9     4     6

>> A(2)=[]

A =

     5     9     4     6

>> A(2:3)=[]

A =

     5     6

fx >> |
```