

Vectors:

A vector is a one-dimensional array of numbers. MATLAB allows creating two types of vectors:

- **Row vectors** : are created by enclosing the set of elements in square brackets, using **space** or **comma** to delimit the elements.

```
>> v=[1 2 3 4]
      v = 1  2  3  4
>> v=[1,2,3,4]
      v=  1  2  3  4
```

- **Column vectors** : are created by enclosing the set of elements in square brackets, using **semicolon** to delimit the elements. or press the Enter key after each element

```
>> c =[7; 8; 9; 10]
      c = 7
           8
           9
          10
      c=[7
           8
           9
          10]
```

- **The transposing** any row vector results in a column vector, and transposing a column vector results in a row vector.

```
>> c=[1 2 4 6] ;
```

```
z=c'
```

```
z=1
```

```
2
```

```
4
```

```
6
```

```
>> v = [1;2;3;4];
```

```
Tv = v';
```

```
disp(Tv);
```

```
>> 1 2 3 4
```

- **Vectors with Uniformly Spaced Elements**

To create a vector **v** with the first element **k**, last element **j**, and the difference between elements is any real number **n**, we write: **v=[first : step : last]**

v = [k : n : j]

or v = k : n : j → The brackets are optional

EX:

```
>> y=[1.5 :0.1: 2.1]
```

```
% First element 1.5, spacing 0.1, last element 2.1.
```

```
y =
```

```
1.5000 1.6000 1.7000 1.8000 1.9000 2.0000 2.1000
```

```
EX: v = [1: 2: 10] ;
```

```
z = v.^2 ;
```

```
disp(v); disp(z) ;
```

```
>>1 3 5 7 9
```

```
1 9 25 49 81
```