Esercizio 1

a)

```
>> x = [5 : 23/99 : 28];
>> x = linspace(5, 28,100);
```

b)

```
>> x = 2: 0.2: 14
>> x = linspace(2, 14, 61)
```

c)

```
>> x = linspace(-2, 5, 50)
>> x = [-2 : 1/7 : 5]
```

==========

Esercizio 2

```
>> A = [3, 7, -4, 12; -5, 9, 10, 2; 6, 13, 8, 11; 15, 5, 4, 1];
```

a)

```
>> v = A(:, 2);
```

b)

```
>> v = A(2, :);
```

==========

Esercizio 3

```
>> A = [3, 7, -4, 12; -5, 9, 10, 2; 6, 13, 8, 11; 15, 5, 4, 1];
```

a)

```
>> B = A(: , 2:4);
```

b)

```
>> C = A(2:4 , :);
```

c)

```
>> D = A(1:2 , 2:4);
```

==========

Esercizio 4

```
>> A = [3, 7, -4, 12; -5, 9, 10, 2; 6, 13, 8, 11; 15, 5, 4, 1];
```

a)
```
>> max_col=max(A);
>> min_col=min(A);
```

b)
```
>> max_row = max(A, [], 2);
>> min_row = min(A, [], 2);
```

N.B. è possibile usare anche l'operatore di trasposizione

==========

Esercizio 5
```
>> A = [3, 7, -4, 12; -5, 9, 10, 2; 6, 13, 8, 11; 15, 5, 4, 1];
```

a)
```
>> B = sort(A);
```

b)
```
>> C = sort(A, 2);
```

c)
```
>> D = sum(A);
```

d)
```
>> E = sum(A, 2);
```

==========

Esercizio 6
```
>> A = [1 4 2; 2 4 100; 7 9 7; 3 pi 42];
>> B = log(A);
```

a)
```
>> B_second_row = B(2 , :);
```

b)
```
>> B_second_row_sum = sum(B_second_row);
6.6846
```

c)

```
>> B_second_col = B(:, 2);
>> A_first_col = A(:, 1);
>> mul = B_second_col .* A_first_col

mul =

    1.3863
    2.7726
   15.3806
    3.4342
```

d)

```
>> max_el=max(mul);

max_el =

   15.3806
```

e)

```
>> A_first_row = A(1,:);
>> B_elements = B(1:3,3);
>> result = sum(A_first_row ./ B_elements');
result =

    3.3391
```

==========

Esercizio 7

```
>> A = [-7 16; 4 9];
>> B = [6 -5; 12 -2];
>> C = [-3 -9; 6 8];
```

a)

```
>> A + B + C

ans =

    -4     2
    22    15
```

b)

```
>> A - B + C

ans =

   -16    12
    -2    19
```

c)

```
>> (A + B) + C

ans =

    -4     2
    22    15

>> A + (B + C)

ans =

    -4     2
    22    15
```

d)

```
>> A + B + C

ans =

    -4     2
    22    15

>> B + C + A

ans =

    -4     2
    22    15

>> A + C + B

ans =

    -4     2
```

```
   22    15

>>
```

==========

Esercizio 8

```
>> A = [64 32; 24 -16];
>> B = [16 -4; 6 -2];
```

a)

```
>> A .* B

ans =

        1024        -128
         144          32
```

b)

```
>> A ./ B

ans =

    4    -8
    4     8
```

c)

```
>> b_cubic = B .^ 3

b_cubic =

        4096         -64
         216          -8
```

==========

Esercizio 9

```
>> w = [1 2 3];
>> x = [4 5 6];
>> y = [7 8 9];
>> z = [10 11 12];
>> c = 7;
```

```
>> d = 9;

f = 1./sqrt(2*pi*c./x)
E = (x + w./(y + z))./(x + w./(y - z))
A = exp(-c./(2*x))./(log(y).*sqrt(d*z))
S = x.*(2.15 + 0.35*y).^1.8./(z.*(1-x).^y)
```

==========

Esercizio 10

```
>> A = [11 5; -9 -4];
>> B = [-7 -8; 6 2];
>> A * B

ans =

     1    40
   -30   -44


>> B * A

ans =

    -5    -3
    48     22
```

==========

Esercizio 11

```
>> A = [3 -2 1; 6 8 -5; 7 9 10];
>> B = [6 9 -4; 7 5 3; -8 2 1];
>> C = [-7 -5 2; 10 6 1; 3 -9 8 ];

a)
>> A*(B+C)

ans =

   -42   -17    -5
   155   147   -25
    96    57   112
```

```
>> A*B + A*C

ans =

   -42   -17    -5
   155   147   -25
    96    57   112
```

b)

```
>> (A*B)*C

ans =

         167         287        -125
         -99        -111         308
        1132         562         250

>> A*(B*C)

ans =

         167         287        -125
         -99        -111         308
        1132         562         250

>>
```