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BSCS – 6A

180459

Task: 1

```
>> A = magic(5)

A =

    17    24     1     8    15
    23     5     7    14    16
     4     6    13    20    22
    10    12    19    21     3
    11    18    25     2     9

>> A'

ans =

    17    23     4    10    11
    24     5     6    12    18
     1     7    13    19    25
     8    14    20    21     2
    15    16    22     3     9

>> A/2

ans =

    8.5000   12.0000    0.5000    4.0000    7.5000
   11.5000    2.5000    3.5000    7.0000    8.0000
    2.0000    3.0000    6.5000   10.0000   11.0000
    5.0000    6.0000    9.5000   10.5000    1.5000
    5.5000    9.0000   12.5000    1.0000    4.5000
```

```
>> det(A)

ans =

   5.0700e+06

>> inv(A)

ans =

   -0.0049    0.0512   -0.0354    0.0012    0.0034
    0.0431   -0.0373   -0.0046    0.0127    0.0015
   -0.0303    0.0031    0.0031    0.0031    0.0364
    0.0047   -0.0065    0.0108    0.0435   -0.0370
    0.0028    0.0050    0.0415   -0.0450    0.0111

>> A(:,2)

ans =

    24
     5
     6
    12
    18

>> A(4,:)

ans =

    10    12    19    21     3
```

Task 2:

```
>> z = [0.9347,0.3835,0.5194,0.8310];
>> sort(z)

ans =

    0.3835    0.5194    0.8310    0.9347

>> max(z)

ans =

    0.9347

>> min(z)

ans =

    0.3835

>> sum(z)

ans =

    2.6686

>> mean(z)

ans =

    0.6672
```

Task 3:

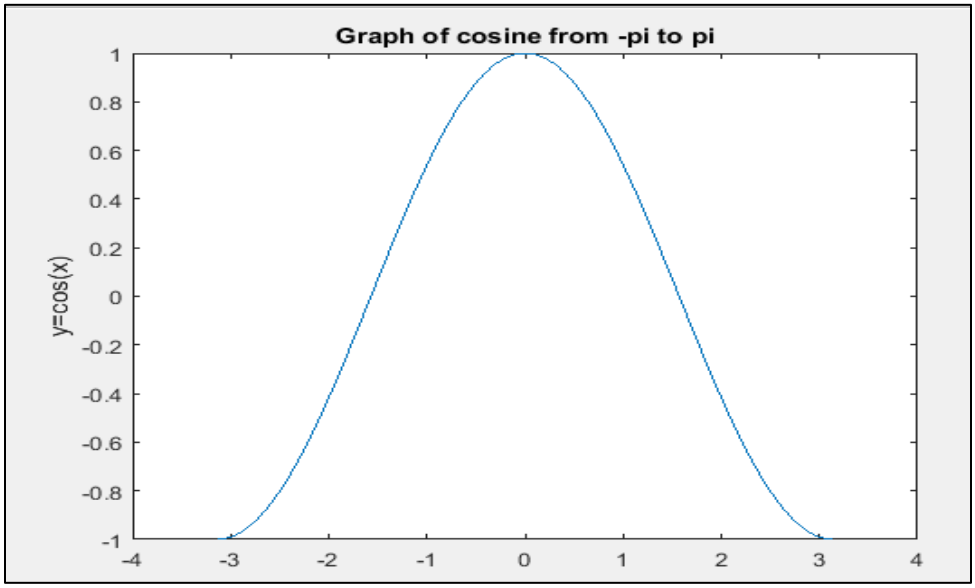
Commands:

```
>> eye(4,4)

ans =

     1     0     0     0
     0     1     0     0
     0     0     1     0
     0     0     0     1

>> zeros(2,3)

ans =

     0     0     0
     0     0     0

>> ones(2)

ans =

     1     1
     1     1
```

```
>> A = [9,7,0;0,8,6;7,1,-6];
>> size(A)

ans =

     3     3

>> det(A)

ans =

 -192.0000

>> inv(A)

ans =

    0.2812   -0.2187   -0.2187
   -0.2187    0.2812    0.2812
    0.2917   -0.2083   -0.3750
```

Graph:

```
>> x=-pi:0.01:pi;
>> y=cos(x);
>> plot(x,y)
>> xlabel('x')
>> ylabel('y=cos(x)')
>> title('Graph of cosine from -pi to pi')
```



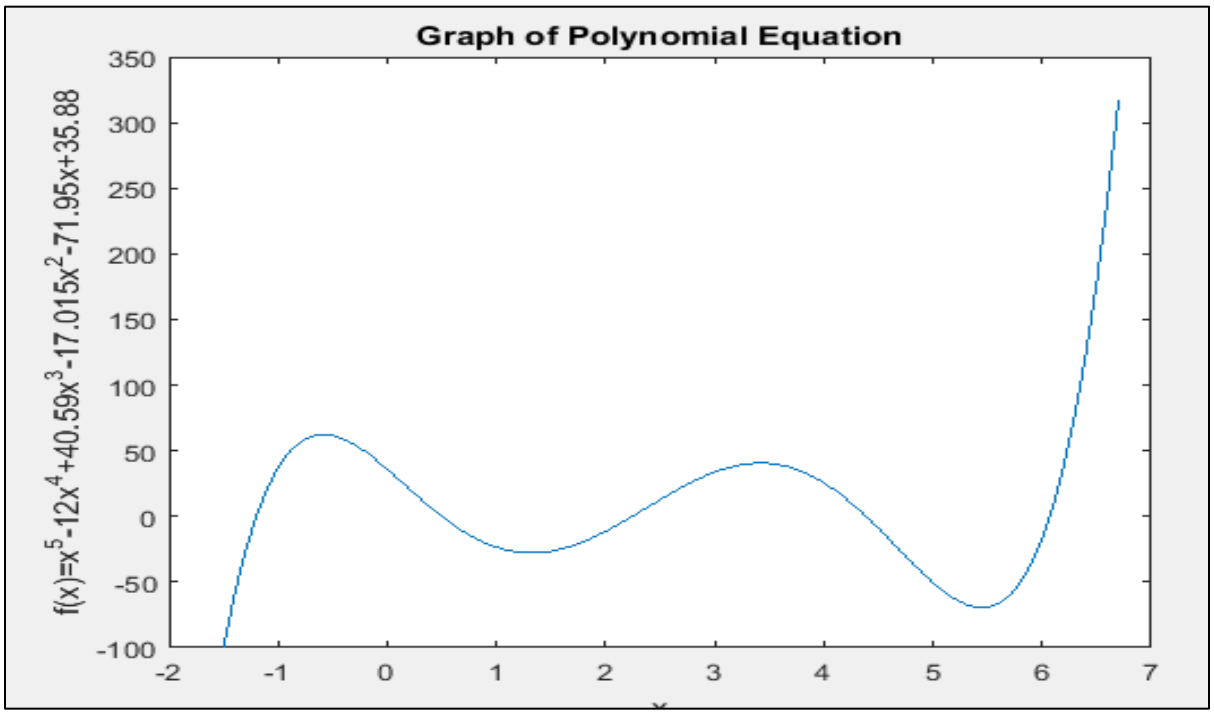
Tasl 4:

```
>> B = [2 2 3; 4 0 6; 8 1 5];
>> C = [1 1 2; 6 3 5; 1 9 1];
>> D = B - C

D =

     1     1     1
    -2    -3     1
     7    -8     4

>> E = B + C

E =

     3     3     5
    10     3    11
     9    10     6

>> F= E+2

F =

     5     5     7
    12     5    13
    11    12     8
```

```
>> G=B*C

G =

    17    35    17
    10    58    14
    19    56    26

>> G=B.*C

G =

     2     2     6
    24     0    30
     8     9     5
```

Task 5:

```
>> P = [1 -12 40.59 -17.015 -71.95 35.88];
>> polyval(P,9)

ans =

   7.9172e+03

>> x=-1.5:0.1:6.7;
>> y=polyval(P,x);
>> xlabel('x');
>> plot(x,y)
>> xlabel('x')
>> ylabel('f(x)=x^5-12x^4+40.59x^3-17.015x^2-71.95x+35.88')
>> title('Graph of Polynomial Equation')
```




```
>> r = roots(P)

r =

    6.0705
    4.3867
    2.2436
   -1.2009
    0.5001
```