20000359

Lab Sheet 11

Question 1

```
>> x
x =

   1   2   3   4   5

>> y
y =

    6
    7
    8
    9
   10

>> dot(x,y)
ans = 130
>>
```

Question 2

```
>> A = [1 1 1 1; 2 3 0 -1; -3 4 1 2; 1 2 -1 1]
A =

   1   1   1   1
   2   3   0  -1
  -3   4   1   2
   1   2  -1   1

>> b = [13; -1; 10; 1]
b =

   13
   -1
   10
    1

>> A \ b
ans =

   2
   0
   6
   5

>>
```

Question 3

```
>> M = floor(rand(5,5).*10)
M =

    0    1    7    5    0
    7    5    9    0    5
    5    7    4    4    6
    1    0    0    8    4
    5    0    6    5    0

>> transpose(M)
ans =

    0    7    5    1    5
    1    5    7    0    0
    7    9    4    0    6
    5    0    4    8    5
    0    5    6    4    0

>> flipud(M)
ans =

    5    0    6    5    0
    1    0    0    8    4
    5    7    4    4    6
    7    5    9    0    5
    0    1    7    5    0

>> fliplr(M)
ans =

    0    5    7    1    0
    5    0    9    5    7
    6    4    4    7    5
    4    8    0    0    1
    0    5    6    0    5
```

Question 4

```
>> roots([1 0 -26 0 25])
ans =

    5.0000
   -5.0000
   -1.0000
    1.0000

>> roots([2 -10 -12 0 0 0 0])
ans =

    6
   -1
    0
    0
    0
    0
```

Question 5

```
>> data = csvread('/home/delta/Documents/Practical/Lab 2/Practical 11/cereal.c
sv')
data =

 Columns 1 through 7:

         0         0         0         0         0         0         0
  100.0000         0         0   70.0000    4.0000    1.0000  130.0000
  100.0000         0         0  120.0000    3.0000    5.0000   15.0000
         0         0         0   70.0000    4.0000    1.0000  260.0000
         0         0         0   50.0000    4.0000         0  140.0000
         0         0         0  110.0000    2.0000    2.0000  200.0000
         0         0         0  110.0000    2.0000    2.0000  180.0000
         0         0         0  110.0000    2.0000         0  125.0000
         0         0         0  130.0000    3.0000    2.0000  210.0000
         0         0         0   90.0000    2.0000    1.0000  200.0000
         0         0         0   90.0000    3.0000         0  210.0000
         0         0         0  120.0000    1.0000    2.0000  220.0000
         0         0         0  110.0000    6.0000    2.0000  290.0000
         0         0         0  120.0000    1.0000    3.0000  210.0000
         0         0         0  110.0000    3.0000    2.0000  140.0000
         0         0         0  110.0000    1.0000    1.0000  180.0000
         0         0         0  110.0000    2.0000         0  280.0000
         0         0         0  100.0000    2.0000         0  290.0000
         0         0         0  110.0000    1.0000         0   90.0000
         0         0         0  110.0000    1.0000    1.0000  180.0000
         0         0         0  110.0000    3.0000    3.0000  140.0000
         0         0         0  100.0000    3.0000         0   80.0000
         0         0         0  110.0000    2.0000         0  220.0000
         0         0         0  100.0000    2.0000    1.0000  140.0000
         0         0         0  100.0000    2.0000         0  190.0000
         0         0         0  110.0000    2.0000    1.0000  125.0000
```

```
>> mean(data)
ans =

 Columns 1 through 7:

    2.5641         0         0  105.5128    2.5128    1.0000  157.6282

 Columns 8 through 14:

    2.1244   14.4103    6.8333   94.8462   27.8846    2.1795    1.0164

 Columns 15 and 16:

    0.8105   42.1187

>> var(data)
ans =

 Columns 1 through 6:

  2.5308e+02           0           0  5.2116e+02  1.2661e+00  1.0130e+00

 Columns 7 through 12:

  7.2635e+03  5.6660e+00  2.0804e+01  2.0115e+01  5.1342e+03  5.0293e+02

 Columns 13 through 16:

  7.4659e-01  3.5940e-02  6.2096e-02  2.1810e+02
```

```
>> std(data)
ans =

 Columns 1 through 7:

   15.9085         0         0   22.8290    1.1252    1.0065   85.2259

 Columns 8 through 14:

    2.3803    4.5611    4.4849   71.6530   22.4262    0.8641    0.1896

 Columns 15 and 16:

    0.2492   14.7683
```