Questions (25 points):

1. (5 points) Find the determinant of the matrix M :(By hand and by coding)

$$M = \begin{pmatrix} 17 & -11 \\ 6 & -3 \end{pmatrix}$$

$$M = \begin{pmatrix} 1 & 1 & 2 \\ 2 & 3 & 1 \\ 3 & 4 & -5 \end{pmatrix}$$

2. (5 points) Find the inverse matrix A-1 to the matrix A : :(By hand and by coding)

3.

$$A = \begin{pmatrix} -3 & -2 \\ 3 & 3 \end{pmatrix}$$

$$A = \begin{pmatrix} 1 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 1 & 1 \end{pmatrix}$$

4. (15 points) Find the solution set of the following systems of linear equations. :(By hand and by coding)

a)
$$x_1 + 4x_2 + 3x_3 - x_4 = 5$$
$$x_1 - x_2 + x_3 + 2x_4 = 6$$
$$4x_1 + x_2 + 6x_3 + 5x_4 = 9$$

b)
$$x_1 - 2x_2 + x_3 - x_4 = 3$$
$$2x_1 - 4x_2 + x_3 + x_4 = 2$$
$$x_1 - 2x_2 - 2x_3 + 3x_4 = 1$$

Practice some commands:

Create 3 * 3 array.
Check its shape.
Select first row.
Select 2nd column.
Select the 2nd element in the third column.
Create 2*2 from the first two elements of the first 2 rows and columns.
Create single row vector.
      Create single column vector.