

# Homework

1. What is the property of magic() function?
2. Write down the MATLAB command to solve

$$\sqrt{144} + (\log_{10}^{100})^2 + e^3 - \sin^{-1}(.05) + \operatorname{cosec}\left(\frac{\pi}{6}\right) - |-5|$$

3. Take 1d matrix using **dialogue input**, a= [11 17 23 50 31 41]. And use **if-else**, **for**, **and/or while loop** which will transform this array into a square matrix in such a way so that the array becomes the reverse diagonal of that matrix.

(Hint: output will be

0	0	0	0	0	11
0	0	0	0	17	0
0	0	0	23	0	0
0	0	50	0	0	0
0	31	0	0	0	0
41	0	0	0	0	0

)

4. Repeat previous problem (3) in opposite way, means input will be matrix, output will be array.

(Hint: output will be [ 41 31 50 23 17 11])

5. Take 1d matrix using **dialogue input**, a= [19 2 3 4 55 6 7 8 91]. And use **if- else**, **for**, **and/or while loop** which will transform this array into a square matrix.

(Ex: output will be  $\begin{bmatrix} 19 & 2 & 3 \\ 4 & 55 & 6 \\ 7 & 8 & 91 \end{bmatrix}$ )

6. Take **S** matrix using **dialogue input**. Find determinate, inverse, two main diagonal elements of the matrix.

**S** =

1	1	1	1	1	1
1	3	1	3	1	3
1	1	4	1	1	4
1	3	1	7	1	3
1	1	1	1	6	1
1	3	4	3	1	12

7. Consider the following system of equations. Solve (x y z) using inverse matrix and **solve** function.

$$x - y + 2z = 5$$

$$2x - 2y + 4z = 10$$

$$3x - 3y + 6z = 15$$

8. Consider the following system of equations. Solve (x y z) using inverse matrix and **solve** function.

$$X=1$$

$$Y=2$$

$$Z=3$$

9. Use **syms** function do the differentiate and integration of

$$\text{Sin}[\ln\{\sec(e^x)\}]$$

10. Write a MATLAB code which will take the value of a radius "r" from user and find the area, volume, and surface area of that circle.