(A)

Thomas Algorithm:

What would you like to do?

A.Solve the system of equation.

B.Perform an LU Decomposition.

C.Perform a Matrix Inversion.

A

Is the system is tridiagonal?(Y/N): Y

-1.9333 -0.8667 -0.5333 0.7333

Gauss Elimination(partial pivoting):

What would you like to do?

A.Solve the system of equation.

B.Perform an LU Decomposition.

C.Perform a Matrix Inversion.

A

Is the system is tridiagonal?(Y/N): N

1.0000 6.2000 19.2200

1.0000 14.2000 100.8200

1.0000 22.4000 250.8800

Roots:

302.4282

20.6754

0.4362

(B)

CHOLESKY Decomposition:

What would you like to do?

A.Solve the system of equation.

B.Perform an LU Decomposition.

C.Perform a Matrix Inversion.

B

Is the matrix is symmetric and positive definite?(Y/N): Y

L:

2.2361 0 0

0.4472 1.9494 0

0 1.0260 1.7168

3 2

1 2

3 2

1 2

LU Decompostion:

1. Crout's Method:

What would you like to do?
A.Solve the system of equation.
B.Perform an LU Decomposition.
C.Perform a Matrix Inversion.
B
Is the matrix is symmetric and positive definite?(Y/N): N
4 2 0
2 4 1
0 1 5

Do you want Crout Type (Y) or Dolittle type (N) ?Y
L
5.0000 0 0
1.0000 3.8000 0
0 2.0000 2.9474

U
1.0000 0.2000 0
0 1.0000 0.5263
0 0 1.0000

3 2
1 2

2. Doolittle Method

What would you like to do?
A.Solve the system of equation.
B.Perform an LU Decomposition.
C.Perform a Matrix Inversion.
B
Is the matrix is symmetric and positive definite?(Y/N): N
4 2 0
2 4 1
0 1 5

Do you want Crout Type (Y) or Dolittle type (N) ?N
L
1.0000 0 0
0.2000 1.0000 0
0 0.5263 1.0000

U
5.0000 1.0000 0
0 3.8000 2.0000
0 0 2.9474

3 2
1 2

(C)

Inverse Of A Matrix

What would you like to do?

A.Solve the system of equation.

B.Perform an LU Decomposition.

C.Perform a Matrix Inversion.

C

Matrix Inverse:

4.3103	-6.5172	-0.3448	0.8966
-5.8276	9.3793	0.5862	-1.7241
-0.3448	0.2414	-0.1724	0.4483
0.2069	-0.3448	0.1034	-0.0690