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3.3.7 Finger Exercise: Gaussian elimination on a 3×3 system

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Finger Exercises 2 due Aug 10, 2023 05:00 IST Completed

MO2.3 MO2.9

Consider the following 3×3 matrix:

$$A = \begin{bmatrix} 1 & -1 & 0 \\ -1 & 2 & -1 \\ 0 & -1 & 2 \end{bmatrix} \tag{3.22}$$

Implement the function `create_A` which returns this matrix as a NumPy `ndarray`.

Problem: Create the A matrix as a NumPy ndarray (External resource)

(2.0 / 2.0 points)

This will launch an external site that will require forwarding of your username.

Launch external site for submission and grading of Python code

Problem: First step of Gaussian elimination

2.0/2.0 points (graded)

In the first step of Gaussian elimination on the matrix A, row 2 becomes row 2 plus X times row 1. Enter X as a floating point number:

1 ✔ Answer: 1.0

Answers are displayed within the problem

Problem: Second step of Gaussian elimination

2.0/2.0 points (graded)

Now, start from the matrix resulting from the first step of Gaussian elimination. Perform the second step on that matrix so that row 3 becomes row 3 plus Y times row 2. Enter Y as a floating point number:

1 ✔ Answer: 1.0

Answers are displayed within the problem

Consider the following vector:

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