Numerical Linear Algebra - Sheet 3

to be handed in until November 6, 2024, 11am.

Problem 1. Problem 2.1.23 in the Lecture Notes.

Problem 2. Problem 2.1.24 in the Lecture Notes.

Problem 3. Problem 2.2.14 in the Lecture Notes.

Problem 4.

1. Write a function `Compute_Givens` which takes two values a and b and returns the Givens parameters c and s.
2. Write a function `Apply_Givens_left` which applies a Givens rotation (matrix) from the left to a matrix M.
3. Test the functions by computing and applying the Givens rotation to pairs of values from the vector $x = (10, \dots, 1)^T$ beginning with the last two entries and ending with the first two entries, thereby transforming the vector into a multiple of the first unit vector.
4. Apply the same computation to randomly generated vectors (which you find in the template file).