

Ceng 375 - Quiz 2

For Thursday section (OPEN SOURCE quiz)

1. Solve this system by Gaussian elimination with partial pivoting:

$$\begin{aligned}x_1 - 2x_2 + 4x_3 &= 6 \\8x_1 - 3x_2 + 2x_3 &= 2 \\-x_1 + 10x_2 + 2x_3 &= 4\end{aligned}$$

- Use only three significant digits of precision.
- How many row interchanges are needed? (Solution: [-0.111,0.0769,1.56])
- What is the LU equivalent of the coefficient matrix?

For Friday section (OPEN SOURCE quiz)

1. Solve the following linear system by Jacobi iterations;

$$\begin{aligned}4x - y + z &= 7 \\-2x + y + 5z &= 15 \\4x - 8y + z &= -21\end{aligned}$$

- Start by $P_0 = (1, 2, 2)$;
- iterate only two steps.