PHY 312/628 - Numerical Methods and Programming

(Hands-on session)

Problem 1: Write a program to employ Naive Gauss elimination to get the solution of :

$$3x_1 - 0.1x_2 - 0.2x_3 = 7.85$$
$$0.1x_1 + 7x_2 - 0.3x_3 = -19.3$$
$$0.3x_1 - 0.2x_2 - 10x_3 = 71.4$$

Print all matrices at all the step of elimination. Check your answers by substituting them into the original equation. Count the number of FLOPs required in this.

Problem 2: Use pivoting to solve the above and check your answers by substituting them into the original equation.

Problem 3: Use the Gausee-Jordan technique to solve the above. Count the number of FLOPs required in this.