

# Linear Algebra, EE 10810/EECS 205004

## Quiz 3.1 – 3.4

Student ID: .....; Your Name: .....  
(Dated: November 13th, 2020)

**Integrity:** There is NO space to cross the **Red Line** !!

1. Find the rank of the following matrix:

$$\begin{pmatrix} 1 & 0 & 2 \\ 1 & 1 & 4 \end{pmatrix} \quad (1)$$

2. Express the following invertible matrix, as a product of elementary matrices:

$$\begin{pmatrix} 1 & 2 & 1 \\ 1 & 0 & 1 \\ 1 & 1 & 2 \end{pmatrix} \quad (2)$$

3. Find the solution(s) for the following system of linear equations:

$$\begin{aligned} x_1 + x_2 + 3x_3 - x_4 &= 0 \\ x_1 + x_2 + x_3 + x_4 &= 1 \\ x_1 - 2x_2 + x_3 - x_4 &= 1 \\ 4x_1 + x_2 + 8x_3 - x_4 &= 0 \end{aligned} \quad (3)$$