Week 2
MATH 4A
TA: Jerry Luo
jerryluo8@math.ucsb.edu
Website: math.ucsb.edu/∼jerryluo8
Office Hours: Monday 9:30-10:30AM, South Hall 6431X; Math Lab hours: Monday 3-5PM, South Hall 1607

2-2.3 Given the augmented matrix below, solve the associated system of equations. For your variables, use $x_1, x_2, x_3, \cdots, x_8$.

$$\left[\begin{array}{cccccccc|c} 1 & 2 & -2 & -3 & 0 & 8 & -4 & -6 & 9 \\ 0 & 0 & 0 & 0 & 1 & 9 & -7 & 7 & -3 \\ 0 & 0 & 0 & 0 & 0 & 1 & 7 & 7 & 5 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 4 & -2 \end{array}\right]$$

2-2.4 Solve the following system:

$$\begin{cases} x_1-4x_2-2x_3 \quad -3x_5+4x_6=-3 \\ \qquad\qquad -x_4+3x_5-2x_6= \ 2 \\ x_1-4x_2 \qquad +7x_5-8x_6=-5 \end{cases}$$

2-2.8 Let $\mathbf{u} = \begin{bmatrix} 9 \\ 3 \\ 4 \end{bmatrix}, \mathbf{v} = \begin{bmatrix} 7 \\ 1 \\ -4 \end{bmatrix}, \mathbf{w} = \begin{bmatrix} -9 \\ -4 \\ 8 \end{bmatrix}$.

Compute $8u + 6v - 7w$.

2-2.10 Let $A = \begin{bmatrix} 1 & -1 & 0 \\ 0 & -2 & 4 \\ -5 & 4 & 2 \end{bmatrix}$ and $b = \begin{bmatrix} -2 \\ 4 \\ -14 \end{bmatrix}$.

Determine if b is a linear combination of a_1, a_2, a_3, the columns of A. If so, determine a nontrivial linear combination.