

Homework 6 - Math 2568 (Spring 2020)

Prof. Cueto

Due date: Wednesday February 19th, 2020 (in class).

The sections and problem numbers refer to the course's textbook (L.W. Johnson, R.D. Riess, J.T. Arnold: *Introduction to Linear Algebra*, 5th edition, Pearson.)

Section	Assigned Problems	Problems to be turned in
§3.2	1, 6, 7, 8, 9, 17, 18, 19, 29, 30, 31	6, 9, 18, 30, 31
§3.3	1, 11, 15, 17, 21, 23, 27, 35, 37, 45	11, 21, 27, 35, 45
§3.4	1, 9, 11, 16, 17, 23, 25, 29, 33, 36	1, 11, 17, 23, 29

Extra Problem: Consider the following three vectors in \mathbb{R}^4 :

$$\mathbf{u} = \begin{bmatrix} -1 \\ 0 \\ 1 \\ 2 \end{bmatrix}, \quad \mathbf{v} = \begin{bmatrix} 3 \\ 4 \\ -2 \\ 5 \end{bmatrix} \quad \text{and} \quad \mathbf{w} = \begin{bmatrix} 1 \\ 4 \\ 0 \\ 9 \end{bmatrix}.$$

Find a system of homogeneous linear equations for which the space of solutions is exactly the subspace of \mathbb{R}^4 spanned by the three vectors. What happens if we wish to do this for each of the above vectors?