Math 219, Linear Algebra I — Fall 2020
Course website: `https://sites.aub.edu.lb/kmakdisi/`
Problem set 1, due Thursday, September 24 at 2pm via Moodle

Exercises from Corwin-Szczarba:

Section 1.1, exercises 2, 3, 4. (Note that the corresponding parts of exericses 3 and 4 are converses to each other.)

Section 2.2, exercises 1, 2, 3bdf, 4cgh. (Note: for this section only, prove that certain sets are (or are not) vector spaces directly from the definition, without using notions of subspaces.

Section 2.3, exercises 6, 4, 3 (in that order; do Exercise A1.1 before solving them however).

Section 2.4, exercises 1acdf, 11. (In this section, definitely use the notion of a subspace.)

Additional Exercises (also required):

Exercise A1.1: Let V be a vector space, and let $r \in \mathbf{R}$, $\vec{\mathbf{v}} \in V$. Show that if $r\vec{\mathbf{v}} = \vec{0}$, then $r = 0$ or $\vec{\mathbf{v}} = \vec{0}$. (Hint: if $r \neq 0$, then its "multiplicative inverse" $1/r$ exists in $\mathbf{R}$.)

Look at, but do not hand in, the following exercises:

Section 1.1, exercises 1, 5, 6, 8, 9.
Section 1.2, exercises 1, 2, 3, 4.
Section 2.1, exercises 1ablmn, 4, 5.
Section 2.2, exercises 5, 7, 8, 12.
Section 2.3, exercises 1, 2, 5, 7, 9.
Section 2.4, exercises 4, 5.