

Homework 3

MATH 231

Due Wednesday, February 22, 2023

Instructions. *Your work will be collected in class on the due date. We will also have a quiz in class on the due date based on the content from the assignment. See the back of the textbook for solutions and hints for odd-numbered problems.*

***You should feel free to use a calculator or computer if you need to find the reduced row echelon form of matrix.

Exercise 1. Complete the following exercises from Section 1.5 in the course textbook:

#27–40, 50, 51, 52

Exercise 2. Complete the following exercises from Section 1.7 in the course textbook:

#1, 3, 5, 7, 9, 11, 13, 21–30, 37, 46

Exercise 3. Let $\mathbf{v}_1, \dots, \mathbf{v}_p$ be vectors in \mathbb{R}^n . Show that if $\mathbf{v}_p \in \text{span}\{\mathbf{v}_1, \dots, \mathbf{v}_{p-1}\}$, then $\text{span}\{\mathbf{v}_1, \dots, \mathbf{v}_{p-1}\} = \text{span}\{\mathbf{v}_1, \dots, \mathbf{v}_p\}$.

(Recall that to show two sets S and T are equal, you must show that $S \subset T$ and $T \subset S$. And, to show that a set S is a subset of a set T , you must show that for any element $s \in S$ that $s \in T$.)