1. Let $W = \{(a_1, a_2, a_3, a_4, a_5, a_6) \in \mathbb{R}^6 : a_1 + 2a_3 + a_5 + 4a_6 = 0, \ -a_1 + 2a_2 + 2a_4 + a_5 + 6a_6 = 0, \ a_3 = a_4 + a_5 + 2a_6\}$. Find a basis for W.

2. Section 2.1, Problem 1 (Just say true or false, no further explanation necessary.)

3. Section 2.1, Problem 3

4. Let $T : \mathbb{R}^5 \to \mathbb{R}^3$, $T(a_1, a_2, a_3, a_4, a_5) = (a_1 + 2a_2 - a_3, -a_2 + 3a_3, -a_1 - a_2 - 2a_3)$. Find bases for the kernel and range of T.

5. (a) Section 2.1, Problem 10

    (b) Section 2.1, Problem 11

6. (a) Section 2.1, Problem 13

    (b) Section 2.1, Problem 14

7. Section 2.1, Problem 17

8. Section 2.2, Problem 1 (Just say true or false, no further explanation necessary.)

9. Section 2.2, Problem 3

10. Section 2.2, Problem 5(a)

11. (**extra credit**) Section 2.1, Problem 37