In the sequel, $V$ denotes a vector space defined over the field $\mathbb{F} = \mathbb{R}$ or $\mathbb{C}$ unless otherwise specified.

1. Read from the textbook: Chapter 2, Section 2-8.

2. [30pts] From the textbook. Ch. 2, Problem 2.1 (d) (e). (Note you need to solve the systems.)

3. [20pts] Find a basis of each of the following vector space
   (1) $\{ (x_1, x_2, \ldots, x_n)^T \in \mathbb{F}^n \mid x_1 + x_2 + \cdots + x_n = nx_n \}$.
   (2) $\{ (x_1, x_2, x_3, x_4, x_5)^T \in \mathbb{F}^5 \mid x_1 = 3x_2, x_3 = 7x_4, x_1 + x_2 + x_5 = 0 \}$.
