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

Problem 1. Read from the textbook: Chapter 5, Sections 5–7.

Problem 2 (30pts). From the textbook: Chapter 5, Problem 1.2.

Problem 3 (20pts). From the textbook: Chapter 5, Problem 1.4.

Problem 4 (30pts). From the textbook: Chapter 5, Problem 6.1.

Problem 5 (20pts). From the textbook: Chapter 5, Problem 6.3.