Textbook problems from DeFranza and Gagliardi:

- §3.3: 12, 20, 26, 36, 38, 40, 42

  Suggestion: Also try some odd-numbered problems from 1-5 and 13-17, then check your work in the back of the book, to get used to the terminology.

Supplemental problems:

1. Suppose that A is an $n \times n$ matrix. Let $W \subseteq M_{n\times n}$ denote the set of matrices B such that $AB = BA$ (that is, A and B commute).

   (a) Show that W is a *subspace* of $M_{2\times 2}$.

   (b) Suppose that A is not a scalar multiple of the identity matrix. Prove that W is at least 2-dimensional (Hint: show that it contains the span of $\{A, I\}$).

(Same "important notes" and "submission instructions" apply as before; omitted to save space.)