

## LINEAR ALGEBRA

### PROBLEMS FOR MIDTERM 1

The following problems are from the 7th edition.

- (1) Section 1.1, Ex. 1–15, 17–21,
- (2) Ex. 16: Does a homogeneous system always have a solution?
- (3) Section 1.2, Ex. 2–6, (no transpose matrices  $A^T$  for us), 12, 15, 18, 26, 27.
- (4) Section 1.3, Ex. 8 (you will probably need the addition theorems for trig functions), 10 (think of  $A$  as a linear map on  $\mathbb{R}^2$ ; can you think of such maps that give the identity map if they are applied twice?), 11, 20, 21, 23 (weird formulation; what they mean is: if  $Ax = rx$ , what is  $A^2x$ ?), 34–36.
- (5) Section 1.4, Ex. 23–29, 38.
- (6) Section 1.5, Ex. 10–18.
- (7) Section 1.6, Ex. 7–12, 15–21 (I did not talk about elementary matrices or equivalence of matrices).
- (8) Supplementary Exercises: Ex. 3–6, 14, 19, 20.
- (9) Section 2.1, Ex. 5–6, 15–20.
- (10) Section 2.2, Ex. 2–14.
- (11) Section 2.3, Ex. 1–19, 23–26.
- (12) Section 2.4, Ex. 1–18, 20–23.
- (13) Section 2.5, Ex. 1–15, 17–35.
- (14) Section 2.6, Ex. 1–21.
- (15) Section 2.7, Ex. 30–33
- (16) Section 2.8, Ex. 1–15, 20–27
- (17) Supplementary Exercises: 1–4, 11, 12, 18
- (18) Section 4.1, Ex. 1–3 (linear maps).

Here's the corresponding list for the 8th edition:

- (1) Section 1.1, Ex. 1–15, 17–21,
- (2) Ex. 16: Does a homogeneous system always have a solution?
- (3) Section 1.2, Ex. 2–5, (no transpose matrices  $A^T$  for us), 8–10.
- (4) Section 1.3, 1–12, 19.
- (5) Section 1.4, Ex. 10–12, 23.
- (6) Section 1.5, Ex. 6, 7, 27–33, 41, 42.
- (7) Section 1.6, Ex. 1–8.
- (8) Supplementary Exercises: Ex. 3, 12
- (9) Section 2.1, Ex. 5–18, 20–23, 28.
- (10) Section 2.2, Ex. 7–12, 15–21.
- (11) Supplementary Exercises: 2, 3, 7, 8, 11, 12, 14, 15
- (12) Section 3.1, Ex. 5, 6, 14–19
- (13) Section 3.2, 1–14
- (14) Section 3.3, 3–12, 15–20, 27–30.
- (15) Section 3.4, 1–18, 20–22.
- (16) Section 3.5, 1–15, 19–27
- (17) Section 3.6, 1–20
- (18) Section 3.7, 30–33
- (19) Section 3.8, 1–14, 20, 21, 26, 27.
- (20) Supplementary Exercises: 1–3, 11–14,
- (21) Section 5.1, Ex. 1–3 (linear maps).