

**Homework 1**

Due on June 12

1. Solve Problem 2.9.

2. Solve Problem 2.7.

3. Solve Problem 2.6.

4. Solve Problem 2.8.

5. Prove the following:

Let  $A \in \mathbb{R}^{m \times n}$ . Either

- (i)  $Ax \gg 0, x \geq 0$  has a solution, or
  - (ii)  $yA \leq 0, y \geq 0, y \neq 0$  has a solution,
- but not both.