

Homework 7

Submit answers for problems 1–4.

1. Exercise A4.22.
2. Find the dual of the SDP

$$\begin{array}{ll} \text{minimize} & x_1 \\ \text{subject to} & \begin{bmatrix} 0 & x_1 & 0 \\ x_1 & x_2 & 0 \\ 0 & 0 & x_1 + 1 \end{bmatrix} \succeq 0. \end{array}$$

Does strong duality hold?

3. Exercise A4.17. For part (c), derive the dual of the SDP in part (a). The idea is similar to exercise T5.19 on the previous homework.
4. Exercise A4.10.

Problems 5–7 are additional practice problems and will not be graded.

5. Exercise A4.8.
6. Exercise A4.28.
7. Exercise A4.30.