The University of Texas at Austin
Department of Electrical and Computer Engineering

EE381K: Convex Optimization — Fall 2019

Problem Set 4

Due: Sunday, October 6, 2019.

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1. Solve Exercise 61 from LLP.
2. Solve Exercise 72 from LLP.
3. Consider the polyhedron $P = \{\mathbf{x}|\mathbf{A}\mathbf{x} \leq \mathbf{b}\}$. Show that if $\mathbf{A}$ is totally unimodular and $\mathbf{b}$ is an integer vector, then all the extreme points of P are integer vectors.
4. Show that the edge-node incidence matrix of a directed graph is totally unimodular.