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

EE381K: Convex Optimization — Fall 2019

Problem Set 6

Due: Sunday, October 20, 2019.

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1. Prove that a function f is convex if and only if its epigraph is convex.

2. Solve Problem 3.11 in the Convex Optimization book (Boyd-Vandenberghe).

3. Solve Problem 3.13 in the Convex Optimization book (Boyd-Vandenberghe).
   [Hint: The negative entropy is strictly convex and differentiable]

4. Solve Problem 3.18 in the Convex Optimization book (Boyd-Vandenberghe).

5. Solve Problem 3.32 in the Convex Optimization book (Boyd-Vandenberghe).
   [Note: The functions f and g may not be differentiable]

6. Solve Problem 3.39 in the Convex Optimization book (Boyd-Vandenberghe).