

## Additional Exercises for *Convex Optimization*

Stephen Boyd

Lieven Vandenberghe

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This is a collection of additional exercises, meant to supplement those found in the book *Convex Optimization*, by Stephen Boyd and Lieven Vandenberghe. These exercises were used in several courses on convex optimization, EE364a (Stanford), EE236b (UCLA), or 6.975 (MIT), usually for homework, but sometimes as exam questions. Some of the exercises were originally written for the book, but were removed at some point. Many of them include a computational component using CVX, a Matlab package for convex optimization; files required for these exercises can be found at the book web site [www.stanford.edu/~boyd/cvxbook/](http://www.stanford.edu/~boyd/cvxbook/). We are in the process of adapting many of these problems to be compatible with two other packages for convex optimization: CVXPY (Python) and Convex.jl (Julia). Some of the exercises require a knowledge of elementary analysis.

You are free to use these exercises any way you like (for example in a course you teach), provided you acknowledge the source. In turn, we gratefully acknowledge the teaching assistants (and in some cases, students) who have helped us develop and debug these exercises. Pablo Parrilo helped develop some of the exercises that were originally used in 6.975.

Course instructors can obtain solutions by email to us. Please specify the course you are teaching and give its URL.

We'll update this document as new exercises become available, so the exercise numbers and sections will occasionally change. We have categorized the exercises into sections that follow the book chapters, as well as various additional application areas. Some exercises fit into more than one section, or don't fit well into any section, so we have just arbitrarily assigned these.

*Stephen Boyd and Lieven Vandenberghe*

# Additional Exercises For Convex Optimization Solutions

**L Darling-Hammond**



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