Labs
Optimization for Machine Learning
Spring 2019

EPFL
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github.com/epfml/OptML_course

Problem Set 11, due May 24, 2019 (Duality)

Prove the following property from the lecture slides:

If f is closed and convex, then for any $\mathbf{x}, \mathbf{y}$,

$$\begin{aligned} \mathbf{y} \in \partial f(\mathbf{x}) &\Leftrightarrow \mathbf{x} \in \partial f^*(\mathbf{y}) \\ &\Leftrightarrow f(\mathbf{x}) + f^*(\mathbf{y}) = \mathbf{x}^\top \mathbf{y} \end{aligned}$$