Labs
Optimization for Machine Learning
Spring 2022

EPFL

School of Computer and Communication Sciences

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github.com/epfml/OptML_course

Problem Set 10, May 13, 2022 (Duality)

Prove the following property from the lecture slides: If f is closed and convex, then for any x, y,

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