CMS Books in Mathematics

Jonathan M. Borwein
Adrian S. Lewis

Convex Analysis and Nonlinear Optimization

Theory and Examples

$$g^*(y) = \log \sum_i \exp \langle a^i, y \rangle$$

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Convex Analysis and Nonlinear Optimization: Theory and Examples

Ouvrages de mathématiques de la SMC

This book is a concise account of convex analysis, its applications and extensions, for a broad audience. Blurring as it does the distinctions between mathematical optimization and modern analysis, the elegant language of convexity and duality is indispensable both in computational optimization and for understanding variational properties of functions and multifunctions. Primarily aimed at first-year graduate students, the text consists of short, self-contained sections, each followed by an extensive set of exercises, many of which are guided. The book is thus appropriate either as a class text or for self-study.

About the Authors

Jonathan M. Borwein is Gordon M. Shrum Professor of Science in the Mathematics and Statistics Department at Simon Fraser University and is a Fellow of the Royal Society of Canada. Dr. Borwein directs Simon Fraser's Centre for Experimental and Constructive Mathematics. He received his Doctorate from Oxford in 1974 and has been on faculty at Dalhousie, Waterloo, and Carnegie Mellon. He has published extensively in optimization, analysis, and computational mathematics and has received various prizes both for research and for exposition.

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