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Titolo	A Mathematical Introduction to Fluid Mechanics [[electronic resource] /] / by Alexandre J. Chorin, Jerrold E. Marsden
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	1 The Equations of Motion -- 1.1 Euler's Equations -- 1.2 Rotation and Vorticity -- 1.3 Navier-Stokes Equations -- 2 Potential Flow and Slightly Viscous Flow -- 2.1 Potential Flow -- 2.2 Boundary Layers -- 2.3 Vortex Sheets -- Addendum: Remarks on Dynamics and Bifurcation -- 3 Gas Flow in One Dimension -- 3.1 Characteristics -- 3.2 Shocks -- 3.3 The Riemann Problem -- 3.4 Combustion Waves -- Vector Identities.
Sommario/riassunto	Mathematical Introduction to Fluid Mechanics presents some selected highlights of currently interesting topics in fluid mechanics in a compact form, as well as providing a concise and appealing exposition of the basic theory of fluid mechanics. The first chapter contains an elementary derivation of the equations, and the concept of vorticity is introduced. The second chapter contains a discussion of potential flow, vortex motion, and boundary layers. A construction of boundary layers using vortex sheets and random walks is presented. Chapter 3 contains an analysis of one-dimensional gas flow from a mildly modern point of view. Weak solution, Riemann problems, Glimm's scheme, and combustion waves are covered.