# Function spaces.

Pick, Lubos

De Gruyter, 2013

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Monografía

This is the first part of the second revised and extended edition of a well established monograph. It is an introduction to function spaces defined in terms of differentiability and integrability classes. It provides a catalogue of various spaces and benefits as a handbook for those who use function spaces to study other topics such as partial differential equations. Volume 1 deals with Banach function spaces, Volume 2 with Sobolev-type spaces



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**Contenido:** Preface; 1 Preliminaries; 1.1 Vector space; 1.2 Topological spaces; 1.3 Metric, metric space; 1.4 Norm, normed linear space; 1.5 Modular spaces; 1.6 Inner product, inner product space; 1.7 Convergence, Cauchy sequences; 1.8 Density, separability; 1.9 Completeness; 1.10 Subspaces; 1.11 Products of spaces; 1.12 Schauder bases; 1.13 Compactness; 1.14 Operators (mappings); 1.15 Isomorphism, embeddings; 1.16 Continuous linear functionals; 1.17 Dual space, weak convergence; 1.18 The principle of uniform boundedness; 1.19 Reflexivity; 1.20 Measure spaces: general extension theory 1.21 The Lebesgue measure and integral1.22 Modes of convergence; 1.23 Systems of seminorms, Hahn-Saks theorem; 2 Spaces of smooth functions; 2.1 Multiindices and derivatives; 2.2 Classes of continuous and smooth functions; 2.3 Completeness; 2.4 Separability, bases; 2.5 Compactness; 2.6 Continuous linear functionals; 2.7 Extension of functions; 3 Lebesgue spaces; 3.1 Lp-classes; 3.2 Lebesgue spaces; 3.3 Mean continuity; 3.4 Mollifiers; 3.5 Density of smooth functions; 3.6 Separability; 3.7 Completeness; 3.8 The dual space; 3.9 Reflexivity; 3.10 The space L8; 3.11 Hardy inequalities 6.4 Reflexivity of Banach function spaces6.5 Separability in Banach function spaces; 7 Rearrangement-invariant spaces; 7.1 Nonincreasing rearrangements; 7.2 Hardy-Littlewood inequality; 7.3 Resonant measure spaces; 7.4 Maximal nonincreasing rearrangement; 7.5 Hardy lemma; 7.6 Rearrangement-invariant spaces; 7.7 Hardy-Littlewood-Pólya

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