CONTENTS

CONTENTS	
PREFACE	
PREFACE TO	THE ENGLISH EDITION
INTRODUCTIO	N
in in objective	***************************************
	Chapter I
	XIMATION IN NORMED LINEAR SPACES BY ELEMENTS OF LINEAR SUBSPACES
§1. Character	rizations of elements of best approximation
1.1	or
1.2	approximation in general normed linear spaces
1.2	
1.4	P. P. C.
1.5	
1.6	1
1.7	
	inner product spaces
1.8	. The second theorem of characterization of elements of best approximation in general normed linear spaces
1,9	
	0. Applications and geometrical interpretation in the spaces
	$C(\dot{Q})$
	1. Applications in linear subspaces of the spaces $C(Q)$
	2. Applications in the spaces $L^1(T, v)$
1.1	3. Other characterizations of elements of best approximation in general normed linear spaces
1.1	4. Orthogonality in general normed linear spaces
9 Evictores	of elements of heat approximation
-	of elements of best approximation
3.1	. Uniqueness of elements of best approximation in general
3.2	normed linear spaces

	5.5. Applications in the spaces 2 (2)	$\frac{120}{123}$
84. <i>k-</i> dim		125
, -· · · · · · · · · · · · · · · · · · ·		125
	spaces	126
	4.3. Applications in the spaces $C(Q)$ and $C_R(Q)$	131
	4.4. Applications in the spaces $L^1(T, \nu)$, $L^1_E(T, \nu)$, $C^1(Q, \nu)$ and $C^1_R(Q, \nu)$	133
	by elements of mour susspaces	135
§6. The	operators π_G and the functionals e_G . Deviations. Elements of ε -approximation	139
	U.I. The operators we	$\frac{140}{147}$
	6.3. The functionals e_{G_n} for increasing or decreasing sequences	
	6.4. The deviation of a set from a linear subspace	151 156
	6.5. Elements of ε-approximation	162
	Chapter II	
BEST AF	PPROXIMATION IN NORMED LINEAR SPACES BY ELEMENTS OF SUBSPACES OF FINITE DIMENSION	165
§1. Char	acterizations of polynomials of best approximation	166
	1.1. Preliminary lemmas	166
	1.2. Characterizations of polynomials of best approximation in general normed linear spaces	170
	1.3 Applications in the spaces $C(O)$, $C_R(Q)$ and $C_0(T)$	178
	1.4. The conjugate space of the space $C_E(Q)$ and the extremal points of its unit cell	191
	1.5 Applications in the spaces $C_{\pi}(0)$	201
	1.6. Applications in the spaces $L^1(T, \nu)$, $L^1_R(T, \nu)$, $C^1(Q, \nu)$ and $C^1_R(Q, \nu)$	203
§2. Uniq	queness of polynomials of best approximation	206
	2.1. Preliminary lemmas	206
	2.2. Finite dimensional Čebyšev subspaces in general normed linear spaces	21 0
	2.3. Applications in the spaces $C(Q)$, $C_R(Q)$, $C_0(T)$ and $L^{\infty}(T, \nu)$	$\frac{215}{225}$
	2.4. Applications in the spaces $C_{\mathbb{R}}(Q)$	440
	and $C_R^1(Q, \nu)$	226
§3. Finit	te dimensional k-Čebyšev subspaces	237
	3.1. Finite dimensional k-Čebyšev subspaces in general normed	238
	linear spaces $$ 3.2. Applications in the spaces $C(Q)$ and $C_R(Q)$	$\frac{230}{240}$

3 1 013 110 1111	elements of finite dimensional linear manifolds	242
	The case of general normed linear spaces \ldots Applications in the spaces $C(Q)$ and $C_R(Q)$	$\begin{array}{c} 242 \\ 244 \end{array}$
§5. The opera	tors π_G and the functionals e_G for linear subspaces G of finite	0.0
	dimension	246
5.1. 5.2.	The operators π_G for linear subspaces G of finite dimension. The operators π_{G_n} for increasing sequences $\{G_n\}$ of linear	246
5.3.	subspaces of finite dimension	252 262
§6. <i>n</i> -dimension	onal diameters. Best n-dimensional secants	268
6.2. 6.3.	Preliminary lemmas	269 274 282
	to a set. Best n-nets. Best n-coverings	287
	Chapter III	
	MATION IN NORMED LINEAR SPACES BY ELEMENTS OF CLOSED PACES OF FINITE CODIMENSION	291
§1. Best appro	eximation by elements of factor-reflexive closed linear subspaces	292
		292 295
§2. Best appro	spaces	295
§2. Best appro	spaces	
§2. Best appro 2.1. 2.2.	spaces	295 295
§2. Best appro 2.1. 2.2. 2.3.	spaces	295 295 302
§2. Best appro 2.1. 2.2. 2.3.	spaces	295 295 302
§2. Best appro 2.1. 2.2. 2.3. §3. Best appro 3.1.	spaces	295 295 302 325
\$2. Best appro 2.1. 2.2. 2.3. \$3. Best appro 3.1. 3.2.	spaces	295 295 302 325 333 333 335
\$2. Best appro 2.1. 2.2. 2.3. \$3. Best appro 3.1. 3.2.	spaces	295 295 302 325 333
\$2. Best appro 2.1. 2.2. 2.3. \$3. Best appro 3.1. 3.2. 3.3.	spaces	295 295 302 325 333 333 335
\$2. Best appro 2.1. 2.2. 2.3. \$3. Best appro 3.1. 3.2. 3.3. \$4. The opera	spaces	295 302 325 333 333 335 339
\$2. Best appro 2.1. 2.2. 2.3. \$3. Best appro 3.1. 3.2. 3.3. \$4. The opera	spaces	295 302 325 333 335 339 350
\$2. Best appro 2.1. 2.2. 2.3. \$3. Best appro 3.1. 3.2. 3.3. \$4. The opera 4.1. 4.2.	spaces	295 302 325 333 333 335 339 350

8 Contents

Appendix I

BEST APPROXIMATION IN NORMED LINEAR SPACES BY ELLMENTS OF NON- LINEAR SETS	359
§1. Best approximation by elements of convex sets	364 364 374 374
Appendix II	
BEST APPROXIMATION IN METRIC SPACES BY ELEMENTS OF ARBITRARY SETS	377
§1. Properties of the sets $\mathfrak{L}_G(x)$. A characterization of elements of best approximation	379
§2. Proximinal sets	382
$\S 3.$ Properties of the mappings \mathfrak{S}_G	386
$\S 4$. Properties of the mappings π_G and of the functionals e_G	390
RIRI IOCPADHY	393