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Book Reviews

Mathematica Slovaca, Vol. 54 (2004), No. 2, 209

Persistent URL: <http://dml.cz/dmlcz/136902>

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BOOK REVIEWS

Chajda, I.—Eigenthaler, G.—Länger, H.:
CONGRUENCE CLASSES IN UNIVERSAL ALGEBRA.
Research and Expositions in Mathematics 26.
Heldermann Verlag, Lemgo 2003, x + 217 pp.
ISBN 3-88538-226-1

The aim of this interesting book is to present the most important results in the field of universal algebra concerning congruence classes, relations between them and connections to subalgebras. The importance of congruences is in that they enable us to construct new structures, so-called quotients, from given ones, with possibly better properties.

The book consists from 12 chapters.

In **Chapter 1**, some preliminary results and notations are introduced.

In **Chapter 2**, the reader finds many examples of algebras that are frequently used in the book.

The most important properties of congruences and their influence on varieties in which they are satisfied are listed in **Chapter 3**.

The question which subsets or subalgebras can be classes of suitable congruences and its most general solution is presented in **Chapter 4**.

In **Chapter 5**, extensions properties of congruences and their classes are studied.

Chapter 6 is devoted to different kinds of regularity of congruences.

Coherence, uniformity and consistency of algebras are analyzed in **Chapter 7**.

Chapter 8 deals with local congruence conditions like permutability, distributivity, modularity, arithmeticity, all at 0.

In **Chapter 9**, characterizations of congruence classes in different kinds of varieties can be found.

Chapter 10 deals with the role of ideals in universal algebras and their relations to congruences.

Directly decomposable congruence classes and corresponding varieties are treated in **Chapter 11**.

In **Chapter 12**, one-block congruences are investigated.

The material contained in the book covers the developments in the relevant field during the last decades. It presents a useful tool for students interested in universal algebra as well as for specialists in this field.

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