

Commutative residuated lattice-ordered semigroups

edit

Abbreviation: CRLSgrp

Definition 1. A *commutative residuated lattice-ordered semigroup* is a residuated lattice-ordered semigroup $\mathbf{A} = \langle A, \vee, \wedge, \cdot, \rightarrow \rangle$ such that

\cdot is *commutative*: $xy = yx$

Remark: This is a template. If you know something about this class, click on the “Edit text of this page” link at the bottom and fill out this page.

It is not unusual to give several (equivalent) definitions. Ideally, one of the definitions would give an irredundant axiomatization that does not refer to other classes.

Morphisms. Let \mathbf{A} and \mathbf{B} be commutative residuated lattice-ordered semigroups. A morphism from \mathbf{A} to \mathbf{B} is a function $h : A \rightarrow B$ that is a homomorphism: $h(x \vee y) = h(x) \vee h(y)$, $h(x \wedge y) = h(x) \wedge h(y)$, $h(x \cdot y) = h(x) \cdot h(y)$, and $h(x \rightarrow y) = h(x) \rightarrow h(y)$.

Definition 2. A ... is a structure $\mathbf{A} = \langle A, \dots \rangle$ of type $\langle \dots \rangle$ such that

... is ...: *axiom*

... is ...: *axiom*

Basic Results.

Examples.

1.

Finite Members. $f(n)$ = number of members of size n .

$$\begin{array}{ll} f(1) = 1 & f(6) = \\ f(2) = & f(7) = \\ f(3) = & f(8) = \\ f(4) = & f(9) = \\ f(5) = & f(10) = \end{array}$$

Subclasses.

Commutative distributive residuated lattice-ordered semigroups subvariety

Commutative residuated lattices expansion

Superclasses.

Residuated lattice-ordered semigroups supervariety

Commutative lattice-ordered semigroups subreduct

REFERENCES

- [1] F. Lastname, *Title*, Journal, **1**, 23–45 MRreview

Properties. (description)

Feel free to add or delete properties from this list. The list below may contain properties that are not relevant to the class that is being described.

Classtype	variety
Equational theory	
Quasiequational theory	
First-order theory	
Locally finite	
Residual size	
Congruence distributive	yes
Congruence modular	yes
Congruence n -permutable	
Congruence regular	
Congruence uniform	
Congruence extension property	
Definable principal congruences	
Equationally def. pr. cong.	
Amalgamation property	
Strong amalgamation property	
Epimorphisms are surjective	