

# Commutative lattice-ordered semigroups [edit](#)

**Abbreviation:** CLSgrp

**Definition 1.** A *commutative lattice-ordered semigroup* is a lattice-ordered semigroup  $\mathbf{A} = \langle A, \vee, \wedge, \cdot \rangle$  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 lattice-ordered semigroups. A morphism from  $\mathbf{A}$  to  $\mathbf{B}$  is a function  $h : A \rightarrow B$  that is a homomorphism:  $h(x \vee y) = h(x) \vee h(y)$ ,  $h(x \wedge y) = h(x) \wedge h(y)$ ,  $h(x \cdot y) = h(x) \cdot h(y)$ .

**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  $n$ .

$f(1) =$	1	$f(6) =$	
$f(2) =$		$f(7) =$	
$f(3) =$		$f(8) =$	
$f(4) =$		$f(9) =$	
$f(5) =$		$f(10) =$	

**Subclasses.**

Commutative residuated lattices expansion

**Superclasses.**

Lattice-ordered semigroups supervariety

Commutative semigroups subreduct

Lattices 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	