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Read | Edit | View history

Search Wikipedia



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Main page

Contents

Current events

Random article

About Wikipedia

Contact us

Donate

Contribute

Help

Learn to edit

Community portal

Recent changes

Upload file

Tools

What links here

Related changes

Special pages

Permanent link

Page information

Cite this page

Wikidata item

Schreier domain

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In **abstract algebra**, a **Schreier domain**, named after **Otto Schreier**, is an **integrally closed domain** where every nonzero element is **primal**; i.e., whenever x divides yz , x can be written as $x = x_1 x_2$ so that x_1 divides y and x_2 divides z . An integral domain is said to be **pre-Schreier** if every nonzero element is primal. A GCD domain is an example of a Schreier domain. The term "Schreier domain" was introduced by **P. M. Cohn** in 1960s. The term "pre-Schreier domain" is due to Muhammad Zafrullah.

In general, an **irreducible element** is primal if and only if it is a **prime element**. Consequently, in a Schreier domain, every irreducible is prime. In particular, an **atomic Schreier domain** is a **unique factorization domain**; this generalizes the fact that an atomic GCD domain is a UFD.

References

Cohn, P.M., *Bezout rings and their subrings*, 1967.

Zafrullah, Muhammad, On a property of pre-Schreier domains, 1987.



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Categories: Ring theory | Abstract algebra stubs

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