

Union-Primes and Immediate Neighbors

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Abstract : The union of a nonempty chain of prime ideals in a noncommutative ring is not necessarily a prime ideal. An ideal is called union-prime if it is a union of a nonempty chain of prime ideals but is not a prime. In this paper, some relations between chains of prime ideals and the induced chains of union-prime ideals are shown; in particular, the cardinality of such chains and the cardinality of the sets of cuts of such chains are discussed. For a ring R and a nonempty full chain of prime ideals C of R , several characterizations for the property of immediate neighbors in C are given.

Keywords : prime ideals, union-prime ideals, immediate neighbors, Kaplansky's conjecture

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