

THE CHROMATIC NUMBER OF A COMMUTATIVE GROUPOID

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In this paper, we study the colouring problem of a commutative groupoid and define the chromatic number of a commutative groupoid. We construct a class of commutative groupoids using a set of all integers modulo n , on which different closed binary non associative operations are defined and we prove the following results:

1. For $n = 2m$, the chromatic number of the commutative groupoid Z_n is m .
2. For $n = p^2$, the chromatic number of the commutative groupoid Z_n is p .
3. For $n = pq$, where p, q are primes such that $2 < p < q$, the chromatic number of the commutative groupoid Z_n is p .

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