

The ideal generated by the primitive idempotent in a Leavitt path algebra over a commutative ring

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The Reduction Theorem in Leavitt path algebra over a commutative unital ring is very important to prove that the Leavitt path algebra is semiprime if and only if the ring is also semiprime. The socle of the semiprime Leavitt path algebra is constructed by minimal ideals of the ring and the set of all line points. Any vertex in the cycle without exits will generate a basic ideal in Leavitt path algebras over a commutative unital ring.