

Title: A note on lattices of idempotents in algebras

Author(s): Juncheol Han, Tsiu-Kwen Lee, Sangwon Park and Tsai-Lien Wong

Let R be a unital algebra over a field K . For idempotents $e, f \in R$, we define $e \leq f$ if and only if $ef = e = fe$. Let $e \wedge f$ and $e \vee f$ denote the infimum and supremum of e and f , respectively, if they exist. Let $e' := 1 - e$ for an idempotent $e \in R$. We prove the following theorem: Let $e, f \in R$ be nontrivial idempotents. Suppose that there exists $p(\lambda) \in K[\lambda]$ with zero constant term such that $p(e f) = p(f e)$ and $p(1) = 1$. Then $e \wedge f = p(e f)$ and $e \vee f = 1 - p(e' f')$.

Address:

Juncheol Han
Department of Mathematics Education
Pusan National University
Pusan
South Korea

Address:

Tsiu-Kwen Lee
Department of Mathematics
National Taiwan University
Taipei
Taiwan

Address:

Sangwon Park
Department of Mathematics
Dong-A University
Pusan, 609-714
South Korea

Address:

Tsai-Lien Wong
Department of Applied Mathematics
National Sun Yat-sen University
Kaohsiung
Taiwan