

## INTISARI

### **KEKOMUTATIFAN RING PRIMA TERHADAP PENGENOL DAN *MULTIPLICATIVE (GENERALIZED)-REVERSE DERIVATION***

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Diberikan ring  $R$  dan pemetaan  $\alpha : R \rightarrow R$ . Pemetaan  $F : R \rightarrow R$  disebut *multiplicative (generalized)-reverse derivation* yang berasosiasi dengan  $\alpha$  jika memenuhi  $F(xy) = F(y)x + y\alpha(x)$  untuk setiap  $x, y \in R$ . Selanjutnya, ring  $R$  disebut ring prima jika untuk setiap  $a, b \in R$  dengan  $aRb = \{0\}$  berakibat  $a = 0$  atau  $b = 0$ . Pada skripsi ini akan dibahas kekomutatifan ring prima  $R$  terhadap suatu kondisi yang melibatkan pengenol dan *multiplicative (generalized)-reverse derivation*. Secara khusus, akan ditinjau kondisi-kondisi  $a(F(xy) \pm xy) = 0$ ,  $a(F(xy) \pm yx) = 0$ ,  $a(F(x)F(y) \pm xy) = 0$ , serta  $a(F(x)F(y) \pm yx) = 0$  pada ring prima  $R$ . Lebih lanjut, kondisi-kondisi ini digunakan sebagai syarat cukup ring prima  $R$  komutatif.

## ABSTRACT

### COMMUTATIVITY OF PRIME RING ON ANNIHILATOR AND MULTIPLICATIVE (GENERALIZED)-REVERSE DERIVATION

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Let  $R$  be a ring and a mapping  $\alpha : R \rightarrow R$ . A mapping  $F : R \rightarrow R$  associated with a mapping  $\alpha : R \rightarrow R$  is called a multiplicative (generalized)-reverse derivation if  $F(xy) = F(y)x + y\alpha(x)$  for all  $x, y \in R$ . Furthermore, the ring  $R$  is called a prime ring if  $aRb = \{0\}$  implies either  $a = 0$  or  $b = 0$  for all  $a, b \in R$ . In this undergraduate thesis, it will be discussed about the commutativity of the prime ring  $R$  for a condition involving annihilator and *multiplicative (generalized)-reverse derivation*. Particularly, it will investigate the conditions  $a(F(xy) \pm xy) = 0$ ,  $a(F(xy) \pm yx) = 0$ ,  $a(F(x)F(y) \pm xy) = 0$ , and  $a(F(x)F(y) \pm yx) = 0$  on the prime ring  $R$ . Furthermore, these conditions are used as sufficient conditions for a commutativity of the prime ring  $R$ .