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CONTENTS

representation formula for a complex multivariate function. Using it we derive general tight complex multivariate high order Ostrowski and Grüss type inequalities. The estimates involve L_p norms, any $1 \leq p \leq \infty$. We finish with applications.

Abstract: Let $\mathcal{R}$ be a semiprime (or prime) ring, $\alpha, \beta : \mathcal{R} \longrightarrow \mathcal{R}$ be automorphisms and $\mathcal{U}$ be a nonzero ideal of $\mathcal{R}$. In this present paper, we study the notions of multiplicative generalized (α, β)-derivations on ideals of $\mathcal{R}$ and prove that if $\mathcal{R}$ admits a multiplicative generalized (α, β)-derivation G associated with a nonzero additive map d and automorphisms α, β, then d is necessarily a (α, β)-derivation of $\mathcal{R}$. Also, we study the structure of a semiprime ring admitting a multiplicative generalized (α, β)-derivation satisfying more specific algebraic identities. Moreover, we provide examples to show that the assumed restrictions cannot be palliated.

Abstract: Let $\Lambda(n)$ be the Von Mangoldt function, let

$$r_G(n) := \sum_{\substack{m_1, m_2 \leq n \\ m_1 + m_2 = n}} \Lambda(m_1)\Lambda(m_2),$$

be the counting function of the Goldbach numbers and the counting function of the prime tuples, respectively. Let $N > 2$ be an integer. We will find the explicit formulae for the average of $r_G(n)$ in terms of elementary functions, the incomplete Beta function $B_z(a, b)$, series over ρ that, with or without subscript, runs over the non-trivial zeros of the Riemann Zeta function and the Dilogarithm function. We will also prove the explicit formulae in an asymptotic form and a truncated formula for the average of $r_G(n)$. Some observation about these formulae and the average with Cesro weight

$$\frac{1}{\Gamma(k+1)} \sum_{n \leq N} r_G(n)(N-n)^k,\ k > 0$$

and

$$r_{PT}(N, h) := \sum_{n=0}^{N} \Lambda(n)\Lambda(n+h),\ h \in \mathbb{N}$$

are included.

Abstract: In this paper, we study the class of rings with adequate range one and investigate the transfer of this property to various contexts of constructions such as pullbacks, trivial ring extensions and amalgamation of rings. Our results provide new classes of

commutative rings satisfying this property.

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$[\frac{\phi(p-1)}{3}]$ GENERATORS OF $(\mathbb{Z}/p\mathbb{Z})^*$ ARE GENERATORS OF $(\mathbb{Z}/p^\ell\mathbb{Z})^*$ FOR EVERY $\ell \geq 2$

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Abstract: It is natural to ask, how many generators of the group $(\mathbb{Z}/p\mathbb{Z})^*$ are also generators of $(\mathbb{Z}/p^\ell\mathbb{Z}),^*$ for all $\ell \geq 2$?. In this article, we prove that there are $\lceil \frac{\phi(p-1)}{3} \rceil$ generators of $(\mathbb{Z}/p\mathbb{Z})^*$ which are also generators of $(\mathbb{Z}/p^\ell\mathbb{Z})^*$, $\forall\ \ell \geq 2$.

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