## A NOTE ON THE HERMITE NUMBERS AND POLYNOMIALS

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Abstract. In this paper, we compute explicitly an integral involving the Hermite polynomials. From our computation, we derive the formula for a product of two Hermite polynomials. Finally, we give some interesting formulae for the product of two Hermite polynomials associated with Bernoulli polynomials like Carlitz did.

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## REFERENCES

[1] S. Araci, D. Erdal and J. J. Seo, A study on the fermionic p-adic q-integral representation on $\mathbb{Z}_{p}$ associated with weighted $q$-Bernstein and $q$-Genocchi polynomials, Abstr. Appl. Anal., 10 (2011), Article ID 649248.
[2] A. BAYAD AND T. KIM, Identities involving values of Bernstein, $q$-Bernoulli, and $q$-Euler polynomials, Russ. J. Math. Phys., 18 (2011), 133-143.
[3] L. Carlitz, Note on the integral of the product of several Bernoulli polynomials, J. London Math. Soc., 34 (1959), 361-363.
[4] T. KIM, Symmetry of power sum polynomials and multivariate fermionic p-adic invariant integral on $\mathbb{Z}_{p}$, Russ. J. Math. Phys. 16 (2009), no. 1, 93-96.
[5] D. S. Kim, T. Kim, S. H. Lee and Y. H. Kim, Some identities for the product of two Bernoulli and Euler polynomials, Adv. Difference Equ., 2012 (2012), Article ID 2012:95, p. 14.
[6] D. S. Kim, T. Kim, S. H. Rim and S. H. Lee, Hermite polynomials and their applications associated with Bernoulli and Euler numbers, Discerte Dyn. Nat. Soc., 2012 (2012), Article ID 974632, p. 13.
[7] T. Kim, Some identities for the Bernoulli, teh Euler and the Genocchi numbers and polynomials, Adv. Stud. Contemp. Math, 20 (2010), 23-28.
[8] D. S. Kim, D. V. Dolgy, H. M. Kim, S. H. Lee and T. Kim, Integral formulas of Bernoulli polynomials, Adv. Stud. Contemp. Math, 22 (2012), 190-199.
[9] T. KIM, Some identities on the $q$-Euler polynomials of higher order and $q$-Stirling numbers by the fermionic p-adic integral on $\mathbb{Z}_{p}$, Russ. J. Math. Phys. 16 (2009), 484-491.
[10] C. S. Ryoo, Some relations between twisted q-Euler numbers and Bernstein polynomials, Adv. Stud. Contemp. Math, 21 (2011), 217-223.
[11] C. S. Ryoo, Some identities of the twisted $q$-Euler numbers and polynomials associated with $q$ Bernstein polynomials, Proc. Jangjeon Math. Soc., 14 (2011), 239-248.
[12] Y. Simsek, Generating functions of the twisted Bernoulli numbers and polynomials associated with their interpolation functions, Adv. Stud. Contemp. Math. 16 (2008) 251-278.

