

QUOTIENT HYPER PSEUDO *BCK*-ALGEBRAS

HABIB HARIZAVI¹

Department of Mathematics
Faculty of Mathematical Sciences and Computer
Shahid Chamran University, Ahvaz, Iran

e-mail: harizavi@scu.ac.ir

TAYEBEH KOOCHAKPOOR

Department of Mathematics
Payame Noor University, Tehran, Iran

e-mail: koochak_p@yahoo.com

AND

RAJAB ALI BOORZOEI

Department of Mathematics
Shahid Beheshti University, Tehran, Iran

e-mail: borzoei@sbu.ac.ir

Abstract

In this paper, we first investigate some properties of the hyper pseudo *BCK*-algebras. Then we define the concepts of strong and reflexive hyper pseudo *BCK*-ideals and establish some relationships among them and the other types of hyper pseudo *BCK*-ideals. Also, we introduce the notion of regular congruence relation on hyper pseudo *BCK*-algebras and investigate some related properties. By using this relation, we construct the quotient hyper pseudo *BCK*-algebra and give some related results.

Keywords: hyper pseudo *BCK*-algebra, normal hyper pseudo *BCK*-ideal, quotient hyper pseudo *BCK*-algebra.

2010 Mathematics Subject Classification: 06F35, 03G25.

¹Corresponding author.

REFERENCES

- [1] R.A. Borzooei and H. Harizavi, *Regular Congruence Relations on Hyper BCK-algebras*, Sci. Math. Jap. **61** (2005) 217–231.
- [2] R.A. Borzooei, A. Hasankhani, M.M. Zahedi and Y.B. Jun, *On hyper K-algebra*, Math. Jap. **52** (2000) 113–121.
- [3] R.A. Borzooei, A. Rezazadeh and R. Ameri, *On hyper pseudo BCK-algebra*, Iranian J. Math. Sci. and Inf., to appear.
- [4] R.A. Borzooei, M.M. Zahedi and H. Rezaei, *Classification of hyper BCK-algebras of order 3*, Italian J. Pure Appl. Math. **12** (2002) 175–184.
- [5] P. Corsini and V. Leoreanu, *Applications of Hyper Structure Theory* (Kluwer Academic Publications, 2003). doi:10.1007/978-1-4757-3714-1
- [6] G. Gorgesu and A. Iorgulescu, *Pseudo BCK-algebra*, in: *Proceeding of DMTCS 01, Combinatorics and Logic* (Ed(s)), (Springer London, 2001) 97–114.
- [7] Sh. Ghorbani, A. Hasankhani and E. Eslami, *Hyper MV-algebras*, *Set-Valued Mathematics and Applications* **1** (2008) 205–222.
- [8] A. Iorgulescu, *Classes of Pseudo BCK-algebra-Part I*, *Journal of Multiple-valued Logic and Soft Computing* **12** (2006) 71–130.
- [9] A. Iorgulescu, *Classes of Pseudo BCK-algebra-Part II*, *Journal of Multiple-valued Logic and Soft Computing* **12** (2006) 575–629.
- [10] Y. Imai and K. Iseki, *On Axiom System of Prepositional Calculi XIV*, *Proc. Japan Acad.* **42** (1996) 26–29.
- [11] Y.B. Jun, M. Kondo and K.H. Kim, *Pseudo Ideals of Pseudo BCK-algebras*, *Sci. Math. Jap.* **8** (2003) 87–91.
- [12] Y.B. Jun, M.M. Zahedi, X.L. Xin and R.A. Borzooei, *On Hyper BCK-algebra*, *Italian J. Pure and Appl. Math.* **10** (2000) 127–136.
- [13] F. Marty, *Scu une généralization de la notion de groups*, in: *8th Congress Math.*, (Ed(s)), (Scandinavian, Stockholm, 1934) 45–49.
- [14] Jie Meng and Young Bae Jun, *BCK-algebras* (Kyung Moon Sa. Co., 1994).

Received 8 March 2013
Revised 6 September 2013