

FUZZY Q -ALGEBRAS WITH INTERVAL-VALUED MEMBERSHIP FUNCTIONS

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Abstract. In this note the notion of interval-valued fuzzy Q -algebras (briefly, i-v fuzzy Q -algebras), the level and strong level Q -subalgebra is introduced. Then we state and prove some theorems which determine the relationship between these notions and Q -subalgebras. The images and inverse images of i-v fuzzy Q -subalgebras are defined, and how the homomorphic images and inverse images of i-v fuzzy Q -subalgebra becomes i-v fuzzy Q -algebras are studied.

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Key words. Q -algebra, fuzzy Q -subalgebra, interval-valued fuzzy set, interval-valued fuzzy Q -subalgebra.

REFERENCES

- [1] BISWAS, R., *Rosenfeld's fuzzy subgroups with interval valued membership function*, Fuzzy Sets and Systems, **63** (1994), 87–90.
- [2] BORUMAND SAEID, A., *Some results on fuzzy Q -subalgebras*, Adv. Stud. Contemp. Math., Kyungshang **12** (2006), 143–154.
- [3] HONG, S. M., JUN, Y. B., KIM, S. J. and KIM, G. I., *Fuzzy BCI-subalgebras with interval-valued membership functions*, IJMMS., **25** (2001), 135–143.
- [4] HU, Q. P. and LI, X., *On BCH-algebras*, Mathematics Seminar Notes, **11** (1983), 313–320.
- [5] IMAI, Y. and ISEKI, K., *On axiom systems of propositional calculi*, XIV Proc. Japan Academy, **42** (1966), 19–22.
- [6] NEGGERS, J., AHN, S.S. and KIM, H. S., *On Q -algebras*, Int. J. Math. & Math. Sci. **27** (2001), 749–757.
- [7] NEGGERS, J. and KIM, H. S., *On B -algebras*, Math. Vensik, **54** (2002), 21–29.
- [8] NEGGERS, J. and KIM, H. S., *On d -algebras*, Math. Slovaca, **49** (1999), 19–26.
- [9] ROSENFELD, A., *Fuzzy Groups*, J. Math. Anal. Appl., **35** (1971), 512–517.
- [10] ZADEH, L. A., *Fuzzy Sets*, Inform. Control, **8** (1965), 338–353.
- [11] ZADEH, L. A., *The concept of a linguistic variable and its application to approximate reasoning. I*, Information Sci., **8** (1975), 199–249.

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