On Hybrid H-Ideals in Hemirings

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ABSTRACT

Solving fascinating problems in engineering, the arts, science, and medicine are just a few examples of human endeavours. Methods of classical mathematics are inadequate to solve these problems as problems in the real world are fraught with uncertainty, making traditional methods difficult to solve. Experts from around the world have developed new mathematical theories like fuzzy set theory and rough set theory to simulate the uncertainties in the above-mentioned disciplines. Soft set theory has been developed in recent years to solve real-world problems. This is extremely helpful in solving a wide range of problems, and as a result, many advances are being made these days. Jun et al. created hybrid structures by combining fuzzy and soft sets. Hybrid structures are soft set and fuzzy set structures that are speculative. In this study, we describe and investigate hybrid h-ideals concepts in hemiring H, and we build hybrid left h-ideals of H using a gathering of left h-ideals of H. Additionally, we define the concepts of hybrid relations and the strongest hybrid relations based on the gathering of hybrid structures and obtain their equivalent conditions. Further, we demonstrate through an example that not all hybrid relations are necessarily the strongest hybrid relations.

Keywords: Hemiring; ideals; hybrid structure; hybrid product; hybrid relation; hybrid homomorphism.

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