

ARITHMETIC CONTINUITY IN QUASI CONE METRIC SPACES

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Abstract: The current study defines and examines the concept of arithmetic continuity in quasi-cone metric spaces. This work introduces several new concepts, including forward and backward arithmetic convergence, arithmetic ff -continuity, fb -continuity, forward and backward arithmetic compactness, and uniform continuity. We have determined the conditions under which the uniform limit of an arithmetic ff -continuous function is again an arithmetic ff -continuous function. In quasi cone metric spaces, certain arithmetic compactness results are also proved. We have also proved some interesting results pertaining to these concepts.

Keywords and Phrases: Arithmetic continuity, arithmetic convergence, arithmetic compactness.

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1. Introduction

If symmetric condition is eliminated from the definition of metric (see [2, 5, 12, 13, 16]) then the distance function is said to be quasi metric. Quasi metric has a variety of applications in pure and applied mathematics, as well as material science (see [4]). Various definitions of quasi cone metric have been given by various authors (see, for example, [1]). Since then, much study has been conducted on the quasi cone metric, particularly on fixed point theory (see, for example [2]). The notion of arithmetic convergence was introduced by Ruckle [14] in the form of a sequence $\{r_n\}$ defined on the set of natural numbers. The sequence $\{r_n\}$ is said to