

COMMON FIXED POINTS OF A PAIR OF GENERALIZED RATIONAL CONTRACTION MAPS IN EXTENDED RECTANGULAR B-METRIC SPACES

D M K KIRAN AND M V R KAMESWARI[†]

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Abstract. In this paper, we obtain common fixed points for two self maps satisfying a general rational contraction conditions in the frame work of extended rectangular B-metric spaces. In order to justify our results, we have provided some examples. Our results improve and extend the results of Alqahtani *et al.* [2] and Asim *et al.* [3]. We apply our results to examine the existence of common fixed points in extended rectangular B-metric spaces equipped with a directed graph.

1. Introduction

Generalization of metric spaces in diverse structures have drawn the attention of scientists due to the development and generalization of many results in fixed point theory. In continuation, Branciari [6] introduced the concept of generalized metric space (rectangular space) as a generalization of metric space and obtained Banach contraction mapping principle in the setting of generalized metric spaces.

Definition 1.1. [6] Let A be a non-empty set. A mapping $v : A \times A \rightarrow [0, \infty)$ is said to be a *rectangular metric on A* if, v satisfies the following (for all $\mu, \eta \in A$ and all distinct $r, s \in A \setminus \{\mu, \eta\}$):

- (1) $v(\mu, \eta) = 0$ if and only if $\mu = \eta$,
- (2) $v(\mu, \eta) = v(\eta, \mu)$,
- (3) $v(\mu, \eta) \leq v(\mu, r) + v(r, s) + v(s, \eta)$.

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[†]Corresponding author.