

## MONOTONICITY PROPERTIES ON $k$ -DIGAMMA FUNCTION AND ITS RELATED INEQUALITIES

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**Abstract.** In this work, we give some monotonicity properties of  $k$ -analogues of digamma and polygamma functions and then we obtain some inequalities related to these functions. At last, we give harmonic mean inequality for  $k$ -digamma function for all positive real values of  $k$  and  $x$ .

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