1047-68-8   **Arman Shokrollahi*** (`armanshokrollahi@khayam.ut.ac.ir`), Ramanujan Institute for
                Advanced Study in Mat, University of Madras, Chennai 600 005, Tamil Nadu, India, Chennai,
                India. *Some useful operations and their applications.*

The calculations including arithmetics of the intervals are developing more and more. Hereby, they are integrated in softwares used by medical teams (medicine dosage, blood circulation simulation, . . .) or even in automobiles softwares. As those softwares are often used for calculations in real time, tragic consequences can occur after a mistake, that happened during Ariane 5 first flight in 1995 or during the first flight of the antimissile Patroit in 1991.

The basic operations used in the arithmetic of the intervals are not very interesting on a mathematics point of view.

We would like to build some operations that would be more appropriate to mathematics and to draw a link with other operations. What has to be respected to the fact that the results of the operations on the intervals have to include all the results of the operations applied on any couple of reals contained in the interval.

Our main goal is applying these operations to the problems of linear and non-linear programming. Moreover, building a normed space allows to envisage a direct differential calculation but this one requires the study of infinitely small intervals and associated arithmetics. (Received October 14, 2008)