Abstract

Numerical methods are techniques which give approximate but accurate solutions to difficult class of problems.

Fuzzy numbers are foundation of fuzzy sets and fuzzy mathematics that extend the domain of numbers from those of real numbers to fuzzy numbers.

Researchers in the past investigated a number of methods of numerical analysis with the help of Fuzzy theory. Recently, various methods have been developed for solving linear programming problems with fuzzy number. Many research works have been done on fuzzy numbers and on its applications in various fields. But very few developments have been seen in the area of numerical methods using fuzzy triangular numbers and actual computer codes.

In this paper the fuzzification of Newton Raphson method to find the solution of cubic equation has been discussed. Results have been obtained in the form of triangular numbers along with
the membership functions using computer programs. The root obtained is then defuzzified using centroid method to convert it into crisp number. Also computer codes are developed for the Newton Raphson Method. Finally comparison has been made between the results obtained from the two methods.

References


Index Terms

Computer Science  Fuzzy Systems

Keywords
Newton Raphson Method, Fuzzy membership function, Triangular fuzzy number, $\alpha$-cut etc.