ASSIGNMENT
ON
TOPIC

Iterative Method

Paper Code → 204

Subject :- Numerical Computational methods

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M.Sc (II Semester)

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Iterative Method

    The methods in which roots are not found directly, instead we start with some approximate value and repeat the method number of times to get close to the actual roots are termed as iterative method and it is a repetitive procedure.

    Iterative method is a trial and error process for finding an answer to a question. In this method one guesses the answer and then tests whether the guess is really the answer. If the guess is not the correct answer then another guess is made and the process is repeated till satisfactory guess is reached.

    Thus iterative method is a repetitive procedure. with every iterative operation consisting of guess and check operation.

An algorithm for the method is as follows :-

Step 1 - Start

Step 2 - Guess the answer.

Step 3 :- Evaluate the value of function.

Step 4 :- If absolute value of the function > error limit
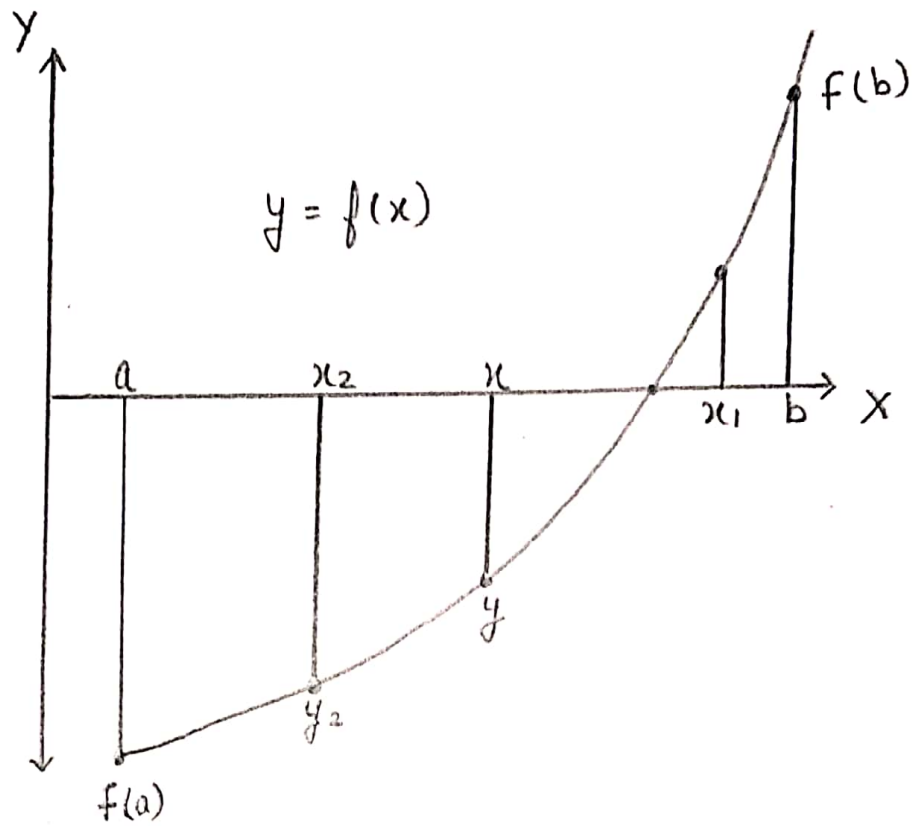
then go to step 2.

Step 5 :- Print the result.

Step 6 :- Stop.

Random guess of the answer may lead either to large number of trials before reaching the correct guess or to not getting the answer at all even after very large number of trials. This situation can be avoided by removing randomness for initial and successive guesses by deciding some criteria for them.

Iterative method are applicable to varieties of problems : finding root of a function is one of them. Bisection method and secant method are the important methods of finding root of transcedental equation.

$$y = f(x)$$

$f(b)$

$a \quad x_2 \quad x \quad x_1 \quad b \quad X$

$f(a)$

y_2

y

Geometrical Construction of Iterative Method