

## Incremental Search Method

\* The user needs to guarantee that there is no discontinuity in the function with the numbers that are going to be entered.

- 1) Ask the user for a function
- 2) Ask the user to input an initial value to find the root of the function that is the closest to this given value. This variable we will call A.
- 3) Ask the user to input a “delta” value that will allow us to make sums to determine the value of B( $B=A+\text{delta}$ ). With this value of delta we are going to make the successive summations to find the interval where the root is.
- 4) We evaluate the values of A and B in the function to obtain  $f(A)$  and  $f(B)$ .
- 5) Now we make a cycle: while  $f(A) * f(B) > 0$ , do
  - a)  $A=B$
  - b)  $f(A)=f(B)$
  - c)  $B=B+\text{delta}$
  - d)  $f(B)$  = the new value of B evaluated in the function.
- 6) The cycle will stop when  $f(A) * f(B) < 0$ , or to explain, when there is a change in the sign. This means that in this interval there is a root. We now have ourselves an interval  $[A,B]$  in which we know there is a root of the function  $f(X)$ .