# Lab 3

Thursday, September 14, 2023 2:47 PM

What does bisection do?: It finds roots of a polynomial

what is required for bisection to work?: A continuous function that satisfies IVT for some interval

what problem is the fixed point iteration trying to solve?: It is trying to solve for all c that satisfy $f(c) = c$

1.

(a.) This interval was able to find the correct root within the interval. within this interval it's not possible to find the root $X=0$ b/c the interval doesn't contain 0.

(b.) This interval returns a value of $-1$. The method is not successful for finding any root. The reason is b/c $f(-1) = -2$ & $f(0.5) = -0.125$ meaning there is

that satisfy $f(c) = c$

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(a) This interval was able to find the correct root within the interval. within this interval it's not possible to find the root $X=0$ b/c the interval doesn't contain 0.

(b.) This interval returns a value of $-1$. The method is not successful for finding any root. The reason is b/c $f(-1) = -2$ & $f(0.5) = -0.125$ meaning there is no sign change w/ this interval so bisection cant work.

(c.) This interval returns the root $X \simeq 1$. The method is successful for finding the $X=1$ root but not the $X=0$ root. This is b/c after the first besection the interval becomes $\left(\frac{-1+2}{2}, 2\right) = (0.5, 2)$ So the $X=0$ root has no possibility of become found.