Homework for Chapter 3

1. Write the algorithm of Fibonacci Search Method, using your OWN words. (10 pts)

2. Solve the following problem: (20 pts)

$$\min f(x) = \sin x + \cos x$$

Given: $x_0 = 3.0, \quad h = 0.2, \quad \varepsilon = 0.1$

Using:

(a) Golden Section Method;

(b) Fibonacci Search Method.

Due in class on Thu. (2023/09/28)

3. Find the minimum point of $f(x)=x^4-2x^2-4x+1$, given $x_0 = 0$, $\varepsilon = 0.05$. Using: (20 pts)

(a) Powell's Quadratic Interpolation Method;

(b) Davidon's Cubic Interpolation Method.

4. Determine the following Statement: (10 pts)

For any unimodal function $f(x)$, any stationary point X* is a local minimizer of $f(x)$.

True or False. Explain why.