

**Instruction:**

Member:

1. Name: \_\_\_\_\_ Code: \_\_\_\_\_

There are two questions:

1. Consider a function

$$f(x) = 8e^{1-x} + 7 \ln(x)$$

- (a) Plot  $f(x)$  over the interval  $[1, 2]$ , and verify that  $f$  is a unimodal over  $[1, 2]$ . (5 points)
- (b) Implement the golden section method that locates the minimizer of  $f$  over  $[1, 2]$  to within an uncertainty (minimum bound) of 0.23. Show how to calculate the steps required to get the uncertainty? (5 points)
- (c) Repeat part (b) using the Fibonacci method, with  $I_n = 0.05$ . (5 points)