





PROBLEM 3 (10 points)

Use Golden-section search to find the minimum of the function:

$$f(x) = x^4 + 2x^3 + 8x^2 + 5x$$

Start with the initial guesses  $x_l = -0.5$  and  $x_u = 0$ .

Summarize your work in the following table. Stop after 3 iterations.

$i$	$x_l$	$x_u$	$x_1$	$x_2$	$f(x_1)$	$f(x_2)$	$x_{opt}$
1							
2							
3							

### PROBLEM 4 (10 points)

Write a MATLAB function `compute_average` to compute

$$\frac{1}{N} \sum_{i=x_1}^{x_2} i$$

Where  $x_1 > x_2$  and are specified by the user.  $N$  is the total number of integers from  $x_1$  to  $x_2$  inclusive. For example, if  $x_1 = 4$  and  $x_2 = 9$ , then

$$\frac{1}{N} \sum_{i=x_1}^{x_2} i = \frac{4+5+6+7+8+9}{6} = 6.5$$

```
function compute_average(x1,x2)
% input:
%   x1 = first number
%   x2 = second number

% Your code goes here ...
```

When you run your code, you should get

```
>> compute_average(4,9);
The average is 6.50
```

Submit `compute_average.m` on BlackBoard.