Homework #3 (Ch. 5, 6, and 7)

Due date for the M-files and those results: April 11 (Thr.) 11:59 pm

※ **Solve the problems (black color problems) but don't need to submit.**

※ **Solve the problems (blue color problems) using MATLAB and submit a Zip file including all files,** naming with your student number, for example, **"2019123456_홍길동_HW3.zip".** Upload the Zip file to the "assignment" bulletin board in our LMS course website.

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1) Problem 5.1
2) Problem 5.3
3) Problem 5.4
   - ✓ **Function name:** `falsepos_학번`
   - ✓ **MUST include the comments like Fig. 5.7 in p. 139.**
4) Modify the above M-file for the false-position method as the followings.
   - ✓ Rename the M-file as "`falsepos_plot_학번`".
   - ✓ Add the input named "`plotting`" between the inputs "`maxit`" and "`varargin`" of the function.
   - ✓ If the input "`plotting`" is the string "`on`", the function plots the curve as a black line and the root as a red spot in a figure window.
   - ✓ If the input "`plotting`" has the string "`off`" or the empty, the function works as the above function before being modified.

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1) Problem 6.3 (a) : Just include the figure of the function.
2) Problem 6.3 (b), (c), (d)
3) Problem 6.3 (e)   **Hint:** using MATLAB function
4) Problem 6.6
   - ✓ **Function name:** `secant_학번`
   - ✓ **MUST include the comments like Fig. 6.7 in p. 161.**
5) Problem 6.7
   - ✓ **Function name:** `modsecant_학번`
   - ✓ **MUST include the comments like Fig. 6.7 in p. 161.**

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5) Problem 7.4 (b)

6) Problem 7.4 (c) with bisection with initial guesses of $x_l = 0$ and $x_u = 1$, and perform five iterations.

7) Problem 7.5

8) Problem 7.12 (a), (b)

    ✓ **Script M-file name:** Prob0712_학번

    ✓ **MUST merge (a) and (b) together as a M-file,** i.e. make the one file to plot the contour and mesh subplots and show the maximum and its evaluation using `fminsearch`.

9) Problem 7.15

    ✓ **Function name:** `goldmax`_학번

    ✓ **MUST include the comments like Fig. 7.7 in p. 192.**