Note: All problems for this assignment must be done in MATLAB, unless the problem indicates otherwise.

Note: You may explain your responses for Problems 1 and 2 with either analytical proof or numerical "proof" by example using MATLAB. Either way, you must have a complete explanation (with words) for each part.

1. Problem 10.2-2

2. Problem 10.2-3

3. Problem 12.1-1
   Note: Even though you could calculate c,d using calculus, automate the process with MATLAB. You may use your analytical knowledge of the function to determine the concavity on a given interval, but the intervals themselves should be calculated numerically.

4. Problem 12.1-3

5. Problem 12.1-4 Note: For parts c-e, repeat both of the first two plots.

6. Problem 12.1-5 Note: For the last bit, make sure you have enough nodes to give reasonable results. Which version is more efficient?

7. Problem 12.1-6a

8. Problem 12.1-7a Note: You may choose implementation (i) or (ii) or come up with your own. Test your code against the results of the previous problem.
   You do not need to implement this in multiple ways.

9. Problem 12.1-10 Note: Make sure to use consistent scales when comparing the norm plots.