Problem Set for Day 8, 1.31.2024

Engineering 104 - Fundamentals of Engineering Computing

Formatting, Organization & Code Comments - Complete the following problems in `Python` and include as part of the submission of the appropriate assignment. Your assignment file should include a proper heading, comments and show clear organizational structure with each problem clearly printed, separated and with each result variable clearly displayed. All problems worked should have a formatted/structured print-out. Print a string denoting each problem, with the solution to the problem clearly printed as a formatted string below the denoted problem. Separate each problem using a blank line in both the code and the printed results. Code comments should be completed throughout the file on every line of code by default. If this assignment requires you to write and submit additional auxiliary script, or any other files in the submission, please append your initials capitalized to the end of the file name.

Python, Lecture #8 Problems - Formatting & Mathematical Expressions (7 Points)

Problem 8.1 (3 Points) - Compute and print the results of the following expressions to 3 decimal places. This is an exercise in organization and operator precedence as much as coding:

$$a = \frac{2 + e^{2.8}}{\sqrt{13} - 2} \tag{1}$$

$$b = \frac{1 - (1 + ln2)^{-3.5}}{1 + \sqrt{5}} \tag{2}$$

$$c = sin\left(\frac{2 - \sqrt{2}}{2 + \sqrt{2}}\right) \tag{3}$$

Problem 8.2 (2 Points) - Define the variable x as $x = 6.7$, then evaluate the following expressions, printing the results:

(a) $\quad y = 0.01x^5 - 1.4x^3 + 80x + 16.7$ $\qquad$ (b) $\quad z = \sqrt{x^3 + e^x - 51/x}$

Problem 8.3 (2 Points) - Define the variable T as $T = 3.2$, then evaluate the following expressions, printing the results:

(a) $\quad t1 = 56T - 9.81\frac{T^2}{2}$ $\qquad$ (b) $\quad t2 = 14e^{-0.1T}sin(2\pi T)$