

MATH 4334.001/CS 4334.001 Name : \_\_\_\_\_  
Fall 2023  
Computer Homework 1  
Due 09/06/2023

Write MATLAB codes to solve the following problems. Your solution should include the source code, the relevant output, and a written explanation of what the output means.

1. Implement the general form of nested multiplication, and use this function to evaluate

$$P(x) = 8x^5 - x^4 - 3x^3 + x^2 - 3x + 1$$

at  $x = -1/2$ .

2. Develop a Taylor series expansion for

$$f(x) = x^3 e^{-5x}$$

centered at 0 and determine the fourth order approximation of  $f(1.2)$ . Compare the approximation thus obtained with the exact value of  $f(1.2)$ .