Homework Assignment 2
Due on Friday 10/12

Programming Problems:

1. Consider a sequence a_n that satisfies the recurrence relation

$$a_{n+2} = \frac{5}{2}a_{n+1} - a_n, \quad n \geq 0,$$

with the initial data $a_1 = 1/6$ and $a_2 = 1/12$.

(i) Write a Matlab code to compute a_{10} and a_{100}.

(ii) Check that $a_n = 1/(3 \cdot 2^n)$ is the exact solution of the recurrence relation with the initial data.

(iii)* Compute the relative error of a_{10} and a_{100}. Is the relative small or large? Why?

2. Write codes for the bisection method and the method of false position. Your codes should be submitted by function M-files. You can use the codes for the following textbook problems.

Writing Problems:

Do the following exercise problems in the text book by Bradie,

Sec 2.1: 2, 9*, 16(a), 17*

Sec 2.2: 1*(a), 4*, 11(c)

Sec 2.3: 1*, 5*, 7*, 9*, 10*

We only discuss * problems in discussion section.