Assignment 3

Problem I. Recall that the Fibonacci sequence is defined by $f_1 = 1$, $f_1 = 1$ and $f_n = f_{n-1} + f_{n-2}$ for $n \geq 2$. Also it is known that f_n/f_{n-1} converges to the golden ratio. Write an algorithm which computes the golden ratio by computing this ratio till two successive computed values differ by less than a given error.

Go through your algorithm for $n = 2$ and $n = 3$.

Problem II. Recall that a polynomial can be represented as a list of pairs : $[(d, c)]$ where x^d has coefficent c. Thus $x^3 + 3x + 1$ is represented by `[(0, 1), (1, 3), (3, 1)]`. Write an algoritm which will return the representation of the derivative. For our polynomial it should return `[(0, 3), (2, 3)]`.