Homework #3

1. Using a programming language of your choice, find out whether $1.2 - 1 - 0.2 == 0$ is true or false. Also state the language you used.

2. The iteration $x_{n+1} = 4x_n(1 - x_n)$ is extremely sensitive to the initial value as well as to roundoff. Yet, thanks to the IEEE 754 standard, it is possible to reproduce the exact same sequence on many platforms.

   Calculate the first 1,010 iterations with initial conditions $x_0 = 0.8$ and $x_0 = 0.8 + 10^{-15}$. Use double (8-byte) precision. If IEEE 754 compliance is not enabled by default for the tool/language you use, find out how to enable it. Submit the program as well as the values $x_{1000}...x_{1009}$ to 10 digits after the comma. We will compare the results in class.