Armaan Sethi
Physics 331
Homework 2

1.

a)The program would not be able to continue due to a run-time error since we are dividing by 0.

b)As delta decreases, the calculation of the sum becomes inaccurate.

c)

16bit: 10^-8

32bit: 10^-45

64bit: at 10^-323, but at 10^-309 to 10^-311 I get "OverflowError: cannot convert float infinity to integer"

2.

For which of the four functions listed above is rf_bisect bound to fail on the given interval?

The solution fails on f4 because there is a division by 0.

Which solution is meaningless? Suggest remedies to resolve the cause of failure.

The solution is meaningless for f3 because there are many roots and this method only finds 1 at 'random' (it is not random, but according to the algorithm, but we are not specifically looking for that root.) In order to solve it we can use the bisection method multiple times on a very small domain in order to find all roots, or have a better way to target a single root that we want.