homework 02

due tuesday, february 13, noon

submit via blackboard

1. (30 pts) code to solve root of function,

   $$f(x) = x^3 + x - 1$$

   over range $x \in [0,1]$ using methods: (a) bisection, (b) newton-raphson, (c) secant.

2. (5 pts) explain the difference between newton-raphson and secant root-finding methods.

3. (15 pts, m685 only) extend lecture example:

   a) calculate accuracy for

   $$f_2(a,b) = a^2 + 2ab + b^2;$$

   b) compare with

   $$f_1(a,b) = (a + b)^2;$$

   c) discuss expectations if exponent 2 replaced with increasing n.