

### Group Work 3 - Math 165

Names: \_\_\_\_\_

Turn in one copy of your work and answers with all names of the group members on it. Show all work on each problem to receive credit for this exercise. You may not consult with other groups, but you may use your book and notes and ask questions of the instructor. This exercise counts as one quiz score.

1. Use the Bisection Method to determine the positive root of the function  $f(x) = x^2 + 3.2x - 1.7$ , which lies between 0 and 1. Use 5 iterations of the algorithmn.
2. Use Newton's Method to determine the positive root of the function  $g(x) = -x^3 + 0.7x + 2.3$ . Use an initial guess of  $x_0 = 1$  and use 5 itertions of the algorithmn.
3. Use Newton's Method to calculate  $\sqrt[3]{18}$  to an accuracy of 3 decimal places.
4. Demonstrate and/or explain why using Newton's Method to attempt to find a root of the function  $h(x) = \frac{20x - 1}{19x}$  using an initial guess of  $x_0 = 0.2$  will not result in convergence, even though there is a root located at  $x = 0.05$ .