Quiz (3) MCS 471 Jan Verschelde Friday 9 September 2005

NAME : Type of Calculator :

Let $g(x) = -0.1x^3 + 1.9x$ define the fixed point iteration $x_{k+1} = g(x_k)$, $k = 0, 1, \ldots$.

1. Consider the fixed points $x = 0$ and $x = 3$. Compute the rate of convergence at those two fixed points to determine whether, when x_0 is sufficiently close to those two fixed points 0 and 3, the sequence x_k will converge or diverge.

2. For $x_0 = 0.4$, show on the plot below how to compute x_1, x_2, and x_3.