Math 250a (Kennedy) - Quiz 8 - Fall '07

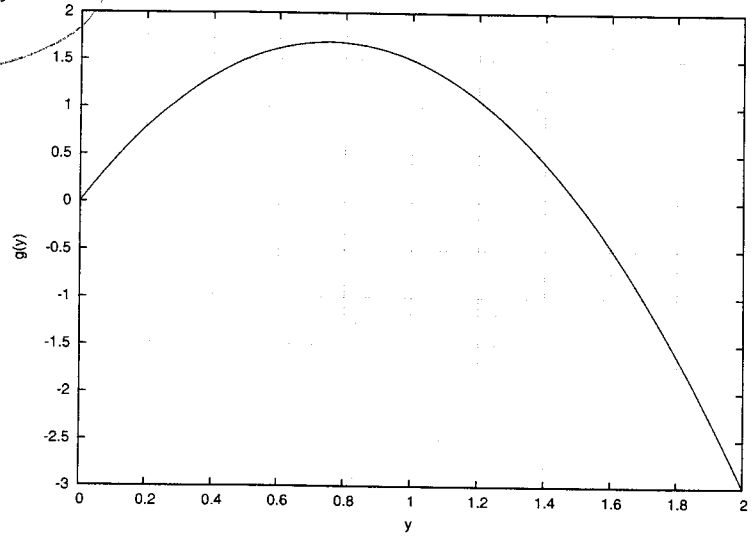
1. A differential equation is solved using two different methods. The resulting errors for several different steps sizes are shown in the table. What is the order of each of the two methods?

6 points

h	method 1	method 2
0.1	0.05780	0.00230
0.05	0.03148	0.00060
0.025	0.01649	0.00015
0.0125	0.00845	0.00004
ORDER?	1	2

2. The function $g(y)$ is defined by the graph below. Consider the differential equation and initial condition $\frac{dy}{dx} = g(y), \quad y(0) = 0.5$.
Use Euler's method with a step size of $h = 0.25$ to estimate $y(1)$.

14 points



x	y	g(y)
0	0.5	1.5
0.25	.88	1.6
0.5	1.28	0.75
0.75	1.47	0.1
1.0	1.49	

NOTE You have to plug y values into g, not x values.