

DUE: 03 March 2011

Please answer these questions on a separate piece of paper.

To receive full credit, you must show your work!!!

1. Consider the initial-value problem

$$\frac{dy}{dt} = \sqrt{y}; \quad y(0) = 1$$

Using Euler's method, compute three different approximate solutions corresponding to $\Delta t = 2.0, 1.0, 0.5$ over the interval $0 \leq t \leq 4$. Graph all three solutions. What predictions do you make about the actual solution to the initial-value problem?

2. Consider the initial-value problem

$$\frac{dy}{dt} = 2 - y; \quad y(0) = 1$$

Using Euler's method, compute three different approximate solutions corresponding to $\Delta t = 2.0, 1.0, 0.5$ over the interval $0 \leq t \leq 4$. Graph all three solutions. What predictions do you make about the actual solution to the initial-value problem?