Euler's Method

An Exercise for the Classroom

Purpose: This exercise will give you practice using Euler's method, and as you work through this problem, you will see that the solution behaves very differently for different initial values.

Exercise: Consider the initial value problem

$$y'(t) = y(t) - t$$
, $y(0) = y_0$.

Each group will use Euler's method to make a plot of the solution, but different groups will use different initial values. As you work, plot the points you compute on the grid below. After you've finished, compare your solutions to the solutions of other groups.

Use $\Delta t = 0.25$, and each group will use one of these starting points: $y_0 = 3$; $y_0 = 1$; $y_0 = 0.25$

