Show all appropriate work.

1. Use the provided function Eulerxy to approximate the solution to $\frac{dy}{dx} = xy$, $y(0) = 1$ on the interval $[0, 1]$ with a step size of $h = 0.5, 0.1, 0.01$, and 0.001. Graph the four approximations together with the exact solution on the same plot. On a separate plot, graph the difference between the four approximations and the exact solution.

2. Problems from the book:

   (a) Section 2.3: 7, Do everything you did for 7, but with the differential equation $\frac{dy}{dx} = \frac{ye^y - 9y}{e^y}$. These last two problems can be handed in on Thursday.