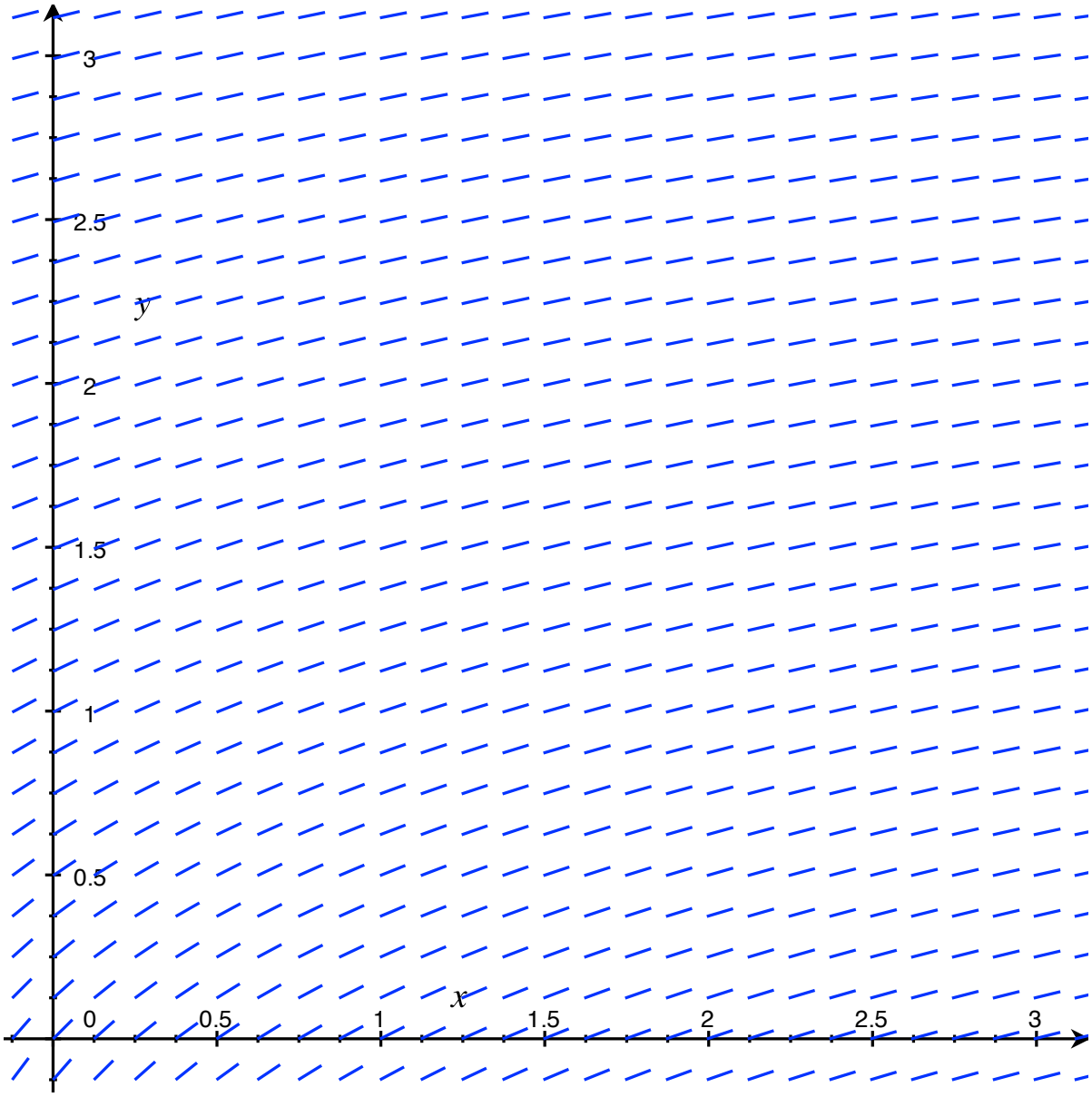
MAT132, Paper Homework 7
due in recitation on 11/26 or 11/27

1. A direction field for a differential equation is shown. Draw, with a ruler, the graphs of the Euler approximations to the solution curve that passes through the origin. Use step sizes $h = 1$ and $h = 0.5$ (and two different colors).



2. **Newton's Law of Cooling** states that the rate of cooling of an object is proportional to the temperature difference between the object and its surroundings. Suppose you have just poured a cup of coffee with temperature $95°\mathrm{C}$ in a room where the temperature is $20°\mathrm{C}$. Using Newton's law, write a differential equation for the temperature of the coffee as a function of time. What is the initial condition?