MAT 127: HOMEWORK 8 (PAPER PART)
DUE WED, OCT 28

1. Sketch the direction field for the following differential equation in the region $\{-2 \leq x \leq 2, \ -2 \leq y \leq 2\}$.
$$y' = y^2 - 1$$
Use it to sketch a solution curve that passes through the point $(1, 0)$. Find all the equilibrium solutions.

2. Sketch the direction field for the following differential equation in the region $\{-2 \leq x \leq 2, \ -2 \leq y \leq 2\}$.
$$y' = y - x$$
Use it to sketch the solution curves passing through the points $(-1, 0)$, and $(0, 0)$.

3. Sketch the direction field for the following differential equation in the region $\{-2 \leq x \leq 2, \ -1 \leq y \leq 1\}$.
$$y' = -2xy$$
Use it to sketch a solution curve that passes through the point $(1, -1)$. Find all the equilibrium solutions.