

Consider the system of ODEs

$$x' = (x - 2)(y - 1)$$

$$y' = y(y + x - 1).$$

- (1) Find the equilibrium points.
- (2) Find the linearized system for each of the equilibrium points. In each case, compute the eigenvalues of the corresponding matrix, and classify the equilibrium point.
- (3) Sketch the phase portrait near each critical points.