

Name: \_\_\_\_\_

Section: \_\_\_\_\_

For the differential equation  $\frac{dy}{dx} = (y - a)(y - b)$  (with  $a < b$ ),

- a) Find the equilibrium points.
- b) Draw the phase line and find the signs of  $y'$  and  $y''$  in each region.
- c) Classify the equilibria as stable or unstable.
- d) Sketch the solution curves. Each region in the phase line should have a corresponding curve whose starting value for  $y$  is in that region.