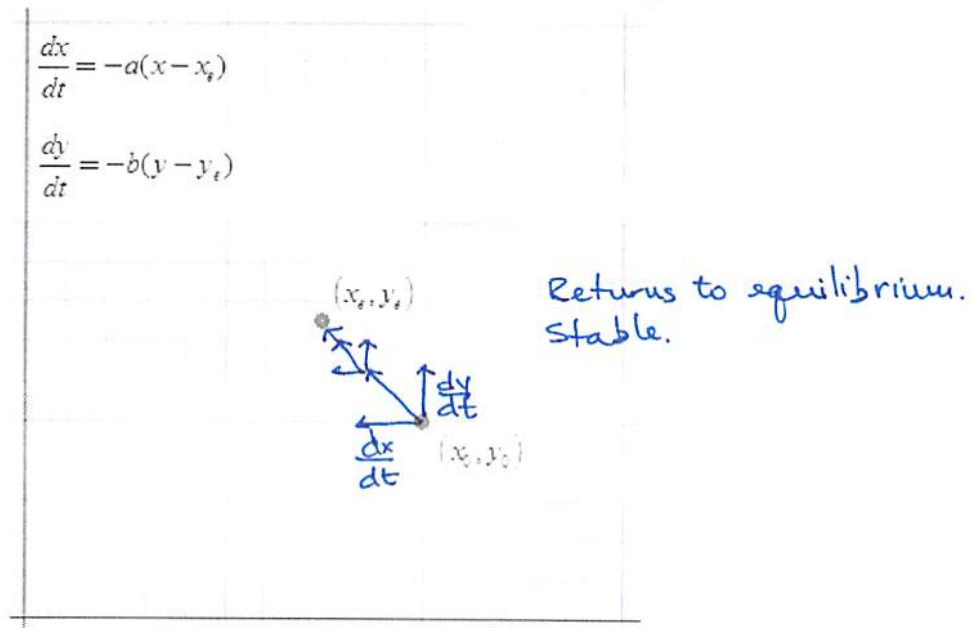
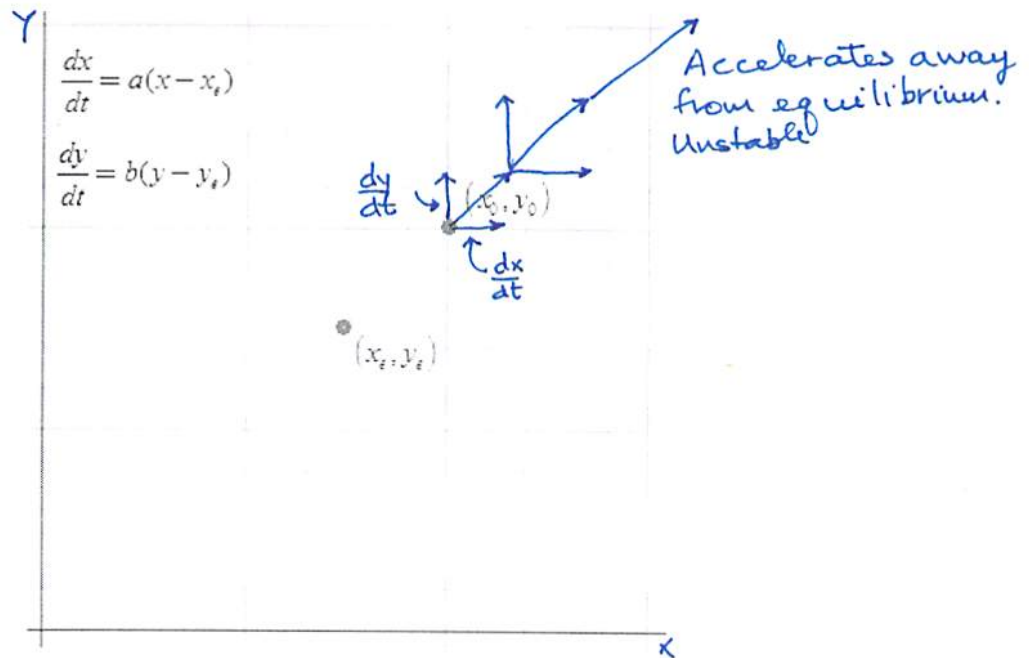


Homework 7.2: Phase graphs

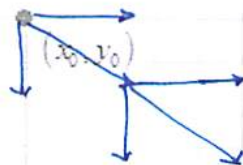
Each of the graphs below shows an equilibrium position for the system, (x_e, y_e) , an initial position, (x_0, y_0) , and the derivatives of the x and y quantities. Sketch the system trajectory that results.



$$\frac{dx}{dt} = -a(y - y_e)$$

$$\frac{dy}{dt} = -b(x - x_e)$$

(x_e, y_e)

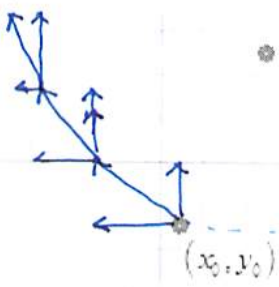


Accelerates away.
Unstable.

$$\frac{dx}{dt} = a(y - y_e)$$

$$\frac{dy}{dt} = -b(x - x_e)$$

(x_e, y_e)



Circles equilibrium
clockwise.
Cyclical.