

ME 406 MID-TERM PROJECT

PROJECT DUE BY 6 PM ON FRIDAY APRIL 3, 2009

You may use any references that you like in doing this project. You also may talk to your classmates and you may ask me questions (preferably in class so that everyone can hear the answers). Any significant help that you receive should be mentioned in an acknowledgement section of your writeup. The writeup may be informal but it should be complete. You should have a combination of narrative, graphs and calculations which fully support your answers.

Give as complete a discussion as you can of the behavior of the plane system given below as the parameter a varies from -3 to 3 .

$$\dot{x} = x + y + a(x - y) - xy - y^2,$$

$$\dot{y} = x - 3y + a(y - x) + xy + y^2.$$