

Homework assigned Monday, November 1

- (1) For the system of equations

$$\frac{dx}{dt} = .1x \left(\frac{36 - x - .8y}{36} \right)$$
$$\frac{dy}{dt} = .2y \left(\frac{24 - y - .5x}{24} \right)$$

describing competition between two species do a complete analysis of the equations. This includes

- (a) Doing the graph showing where $\frac{dx}{dt} = 0$ and $\frac{dy}{dt} = 0$ along with the arrows.
- (b) Deciding what happens to $x(t)$ and $y(t)$ when t is large.
- (2) Do the same for the system of equations:

$$\frac{dx}{dt} = .1x \left(\frac{24 - x - .5y}{24} \right)$$
$$\frac{dy}{dt} = .2y \left(\frac{36 - y - .8x}{36} \right)$$