

Quiz 25

Name: _____

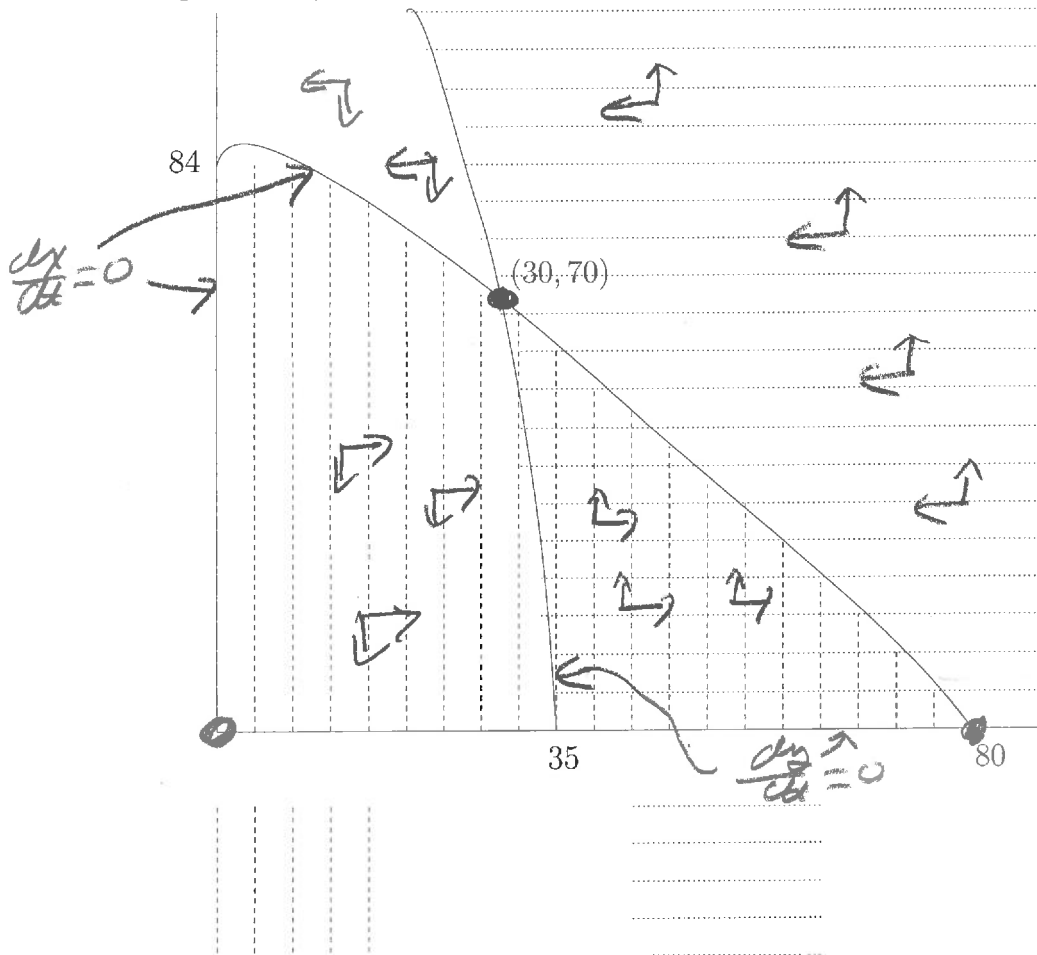
You must show your work to get full credit.

Consider a system of rate equations relating the sizes of the populations of two species, the x -species and the y -species:

$$\frac{dx}{dt} = xf(x, y)$$

$$\frac{dy}{dt} = yg(x, y)$$

and assume the phase diagram looks like:



• = rest point

$f(x, y) > 0$ shaded like this

$g(x, y) > 0$ shaded like this

1. Label the curved line where $\frac{dx}{dt} = 0$
2. Label the curved line where $\frac{dy}{dt} = 0$

3. What are the rest points?

The points are (10, 0), (80, 0), (30, 70)

4. Put in arrows which show which way a point is moving in each of the regions.