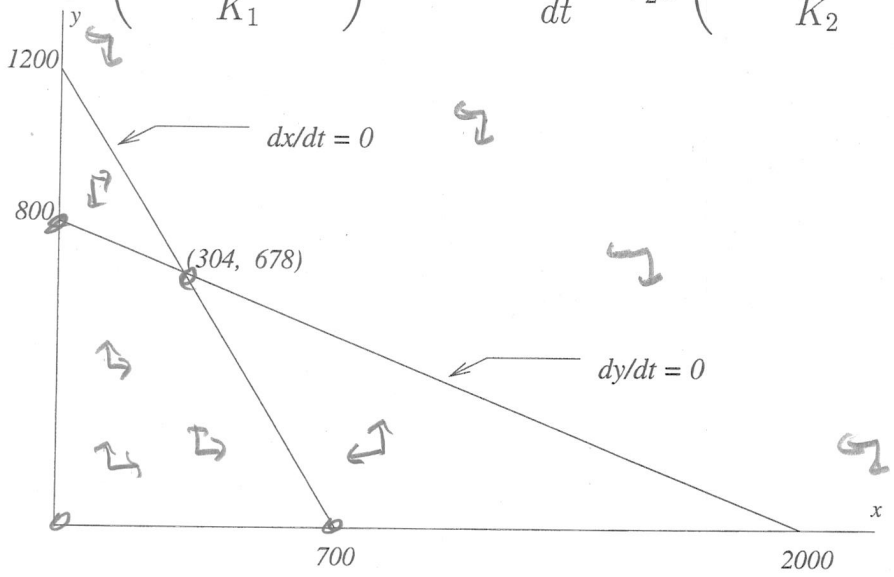
Mathematics 172

Quiz # 26 Name: Key

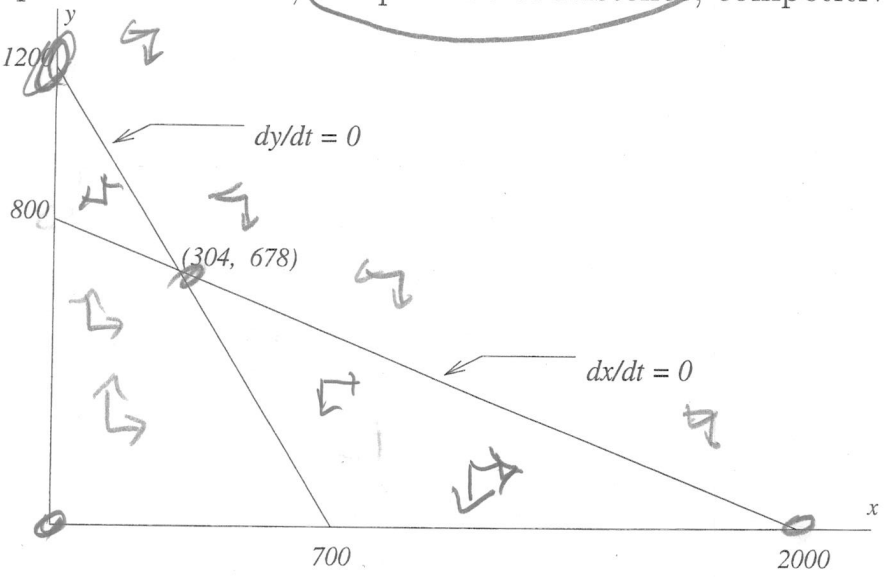
You must show your work to get full credit.

The problems where concern a system of competing species governed by the equations

$$\frac{dx}{dt} = r_1 x\left(\frac{K_1 - x - \alpha y}{K_1}\right) \qquad \frac{dy}{dt} = r_2 x\left(\frac{K_2 - \beta x - y}{K_2}\right)$$



1. For the graph above, What is x carrying capacity? 700, what is y carrying capacity? 1200 What are stable equilibrium points? (304, 678) What are the unstable equilibrium points? (0,0), (700,0), (0,800) Circle the ones that applies: x species dominates, x species dominates, competitive coexistence, competitive exclusion.



2. For the graph above, What is x carrying capacity? 2000, what is y carrying capacity? 1200 What are stable equilibrium points? (2000, 0), (0, 1200) What are the unstable equilibrium points? (0,0), (304,678) Circle the ones that applies: x species dominates, x species dominates, competitive coexistence, competitive exclusion.