Mathematics 172

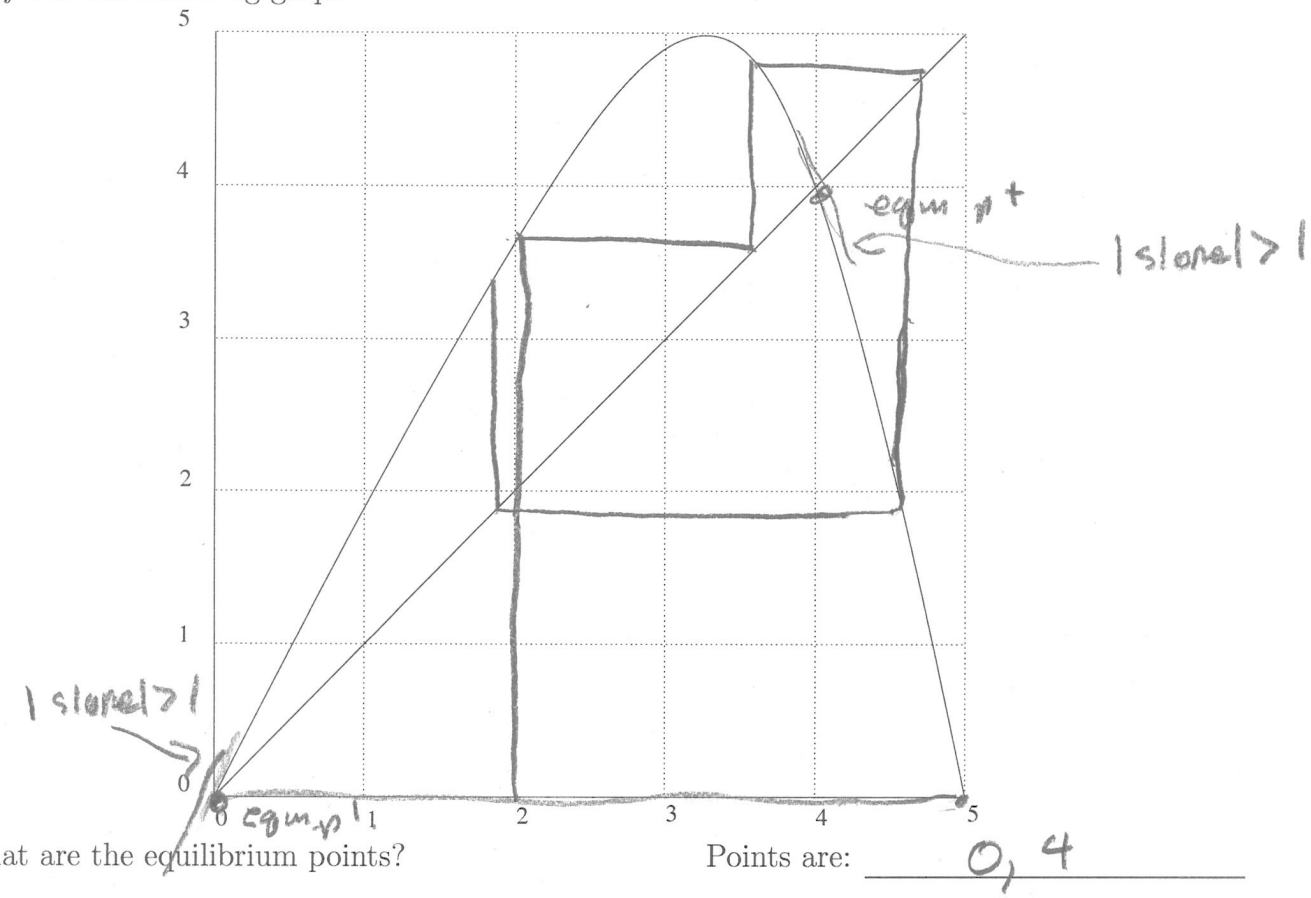
Quiz 6 Name: Key 6

You must show your work to get full credit.

The questions here are about a population modeled on

$$N_{t+1} = f(N_t)$$

where f has the following graph.



1. What are the equilibrium points? Points are: 0, 4

2. Are they stable or unstable? Write a sentence or two explaining why.

Both are unstable as the |slopes|>1.

3. Draw five steps in the cobwebs starting at $N_0 = 2$ and $N_0 = 5$.

If $N_0 = 5$, then $N_1 = 0$ and $N_{t} = 0$ for $t \geq 1$

4. Do you expect N_t to settle down and start to get closer and closer to some point for this system? Give a sentence or two explaining why.

It can not settle down to any point, as that point would have to be a stable equilibrium point and there are none.