

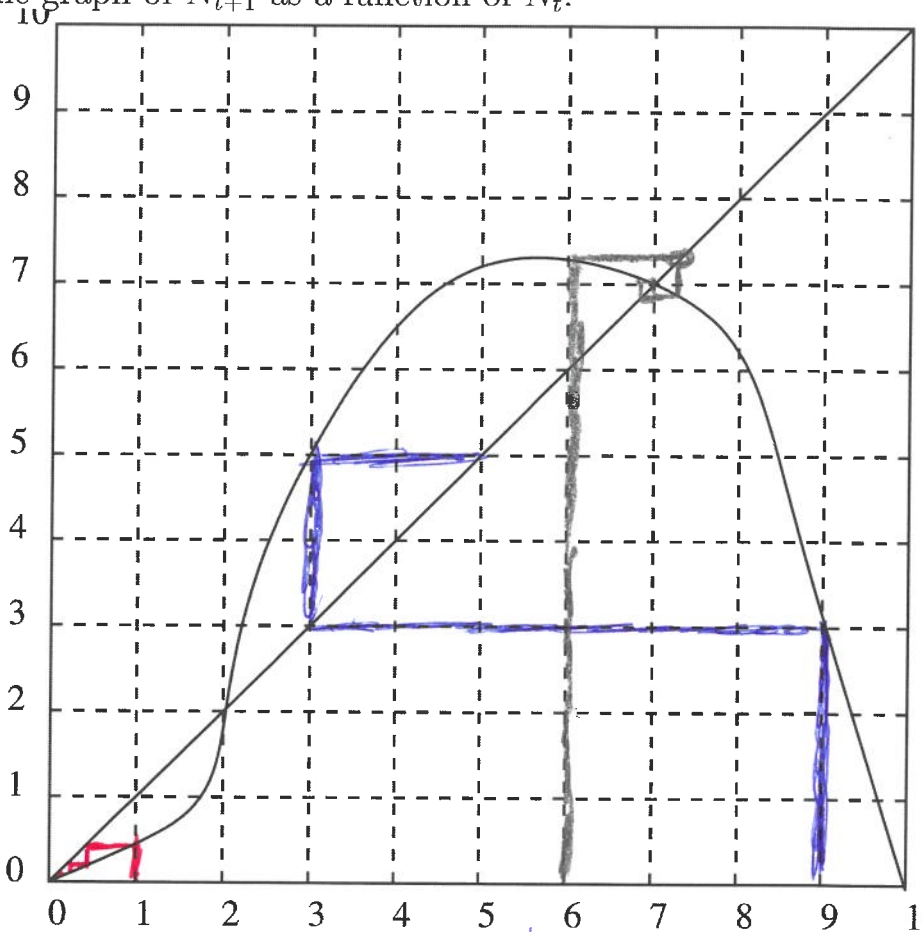
# Mathematics 172

## Quiz 18

Name: Key

*You must show your work to get full credit.*

Here is the graph of  $N_{t+1}$  as a function of  $N_t$ .



- If  $N_0 = 9$  estimate  $N_1$  and  $N_2$ . *Blue lines*  
 $N_1 \approx \underline{3}$   $N_2 \approx \underline{5}$
- If  $N_0 = 1$  estimate the following *Red lines*  
 $N_1 \approx \underline{0.5}$   $N_2 \approx \underline{0.2}$   $N_{17} \approx \underline{0}$
- If  $N_0 = 6$  estimate the following *Pencil line*  
 $N_1 \approx \underline{7.3}$   $N_{10} \approx \underline{7}$
- What are the equilibrium points of this system?  
The equilibrium points are 0, 2, 7
- What are the stable equilibrium points?  
*where |slope| < 1* The stable points are 0, 7