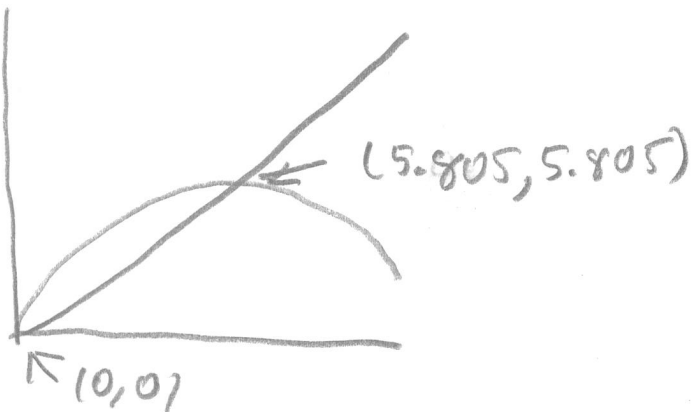


You must show your work to get full credit.

Consider a discrete dynamical system

$$N_{t+1} = 2.4N_t \left(1 - \frac{(N_t)^8}{7}\right).$$

1. Plot the functions $y = 2.4x \left(1 - \frac{x^8}{7}\right)$ and $y = x$ on the same graph with $0 \leq x \leq 11$ and make a rough sketch of the result here:



2. What are the equilibrium points?

0 by inspection
 To find the other use 2nd calc intersect
 to get 5.805

The equilibrium points are: 5.805

3. Which of the equilibrium points are stable?

The stable equilibrium points are: 5.805

Use 2nd calc dy/dx at $x = 5.805$ to
 get $\frac{dy}{dx} = -0.12$ so $|\frac{dy}{dx}| = 0.12 < 1$ stable

4. Which of the equilibrium points are unstable?

The unstable equilibrium points are: 0