

HOMEWORK DUE Friday Sept 10

Book ① page 29 2 b, c, e

② page 30 # 6 a, b

③ page 31 # 10

④ page 34 # 18

⑤ An alternative to the Logistic equation is the richer model

$$x_{n+1} = x_n \cdot \exp\left(r\left(1 - \frac{x_n}{K}\right)\right)$$

- Let $y_n = x_n/K$ & show you can get rid of K .

- Find fixed points & their stability assume that $K=1$

- Sketch a cobweb diagram for $r = 0.5, 1.7, 2.2$

⑥ Write down a simple discrete birth death model for the following situation:

Individuals die at a rate δ & are born at a rate μ

On Dec 31 1998 Germany had a pop of 82,037,000. In 1999 there were 770,744 live births & 816,333 deaths

Find δ, μ . What is the long time prospect for German population?

~~⑦ Let H_n & R_n be number of hedge hogs & rabbits at month n .~~

~~Suppose the rabbits have a λ~~

⑦ Simulate the Richer model for $r = 2.5, 3$. Describe what happens.