Please fill out, sign, and hand in at the END of the class, putting your sheet in the recit. boxes at the end of the front desk.

**LECTURE 5 CHECKPOINTS**

5-1 Why is the curve shown only an "approximate" fractal? It does not have infinitely small detail.

5-2 If \( y = C x^d \), calculate \( \log y \) in terms of \( \log C \), \( \log x \), \( d \)

\[
\log y = \log(C x^d) = \log C + \log x^d = \log C + d \log x
\]

5-3 Can you use a spreadsheet to plot curves on your computer? Computer spreadsheets and their instructions are available on network.

5-4 How many eggs hatch and survive for every adult for general proportionality constant \( R \)? \( x_{n+1} = R^n x_1 \Rightarrow R \) eggs for each adult (adults live only one year).

5-5 Plot \( 1 - \frac{x}{x_{\text{max}}} \) from \( x=0 \) to \( x=x_{\text{max}} \)

5-6 To see just how messy it gets, write \( x_3 \) in terms of \( x_1 \):

\[
x_2 = R x_1 (1-x_1) \Rightarrow x_3 = R x_2 (1-x_2) = R x_1 (1-x_1)(1-R x_1 (1-x_1))
\]

5-7 What is the critical value of \( R \) above which we have period two populations? \( R = 3 \)

5-8 What would period \( \infty \) mean?

Never repeats!