(15 pts)

4. Consider the following table, which gives the population of the U.S. and the number of cars in the U.S., both expressed in millions.

Year	Population	# of cars
1990	249.5	133.7
1991	252.2	128.3
1992	255.0	126.6
1993	257.8	127.3
1994	260.3	127.9
1995	262.8	128.4
1996	265.2	129.7
1997	267.8	129.7

(*a*) What is the five-year moving average for the population in 1994?
(*b*) What is the number of cars per capita for the U.S. in 1997?
(*c*) What is the population in 1995, indexed with the base year 1990?

a) $\frac{255.0 + 257.8 + \ldots + 265.2}{5}$

b) $129.7 / 267.8$ million cars / million people

c) $\frac{\text{'95 pop}}{\text{'90 pop}} = \frac{262.8}{249.5}$

(15 pts)

5. The number of cable TV systems in the United States seems to be governed by a logistic model, $\frac{\Delta x}{\Delta t} = 0.25x - 0.00002273x^2$

(*a*) Find the maximum number of cable TV systems predicted by the model.
(*b*) If there were 9,575 cable TV systems in 1990, how many cable TV systems are predicted by the model for 1991?

If $\frac{\Delta x}{\Delta t} = rx\left(1 - \frac{x}{L}\right) = rx - \frac{r}{L}x^2$

$r = 0.25$ & $\frac{r}{L} = 0.00002273$

$\frac{L}{r} = \frac{1}{0.00002273}$

$L = \frac{0.25}{.00002273} =$

b) Let $x = 9575$, $\Delta t = 1$ and calculate Δx

$\Delta x = 0.25(9575)\left(1 - \frac{9575}{\quad}\right)$

$=$