

(Gumstop)

Math 141, Lec 1
EXAM 2
3/8/00

Name _____

SCORE _____

1. The number of cell phones in a certain city is increasing at a constant percent rate. There were 45,000 cell phones at the start of 1994 and 88,200 cell phones at the start of 1998.

a. (10 pts) How many cell phones were there at the start of 1996?

b. (10 pts) How many cell phones were there at the start of 1997?

2. (20 pts) Street lights in a certain city fail at a constant percentage rate. All 2400 lights were replaced two months ago, and 100 of them have failed so far. How many **more** bulbs will fail in the next ten months?

3. (20 pts) Population A is growing at a constant percent rate of 12% per year, and population B is growing at a constant percent rate of 7% per year. Right now, population B is three times the size of population A. Which population will be bigger in 10 years?

4.a. (10 pts) You make a \$500 loan for 30 months, at the end of which you get back \$600. What is the interest rate on this loan, in % per year?

b. (10 pts) You make a loan of D dollars for M months, at the end of which you get back A dollars. Make a formula for p, the interest rate on this loan in % per year, in terms of D, M and A.

5. (20 pts) You decide to invest \$5,000 in a special savings account with an interest rate of 5%. It is "special" because each year instead of paying a 25% tax on the interest you earn, you pay a 25% tax on 65% of the interest you earn. Assuming that you withdraw enough from your account each year to pay the taxes on your account, how much money will be in your account after 50 years?