AP Calculus
1.3 Worksheet

All work must be shown in this course for full credit. Unsupported answers may receive NO credit.

1. You buy a brand new car for $35,000 and find out it depreciates at 12.5% per year. Write an exponential equation modeling this situation. How much will your car be worth in 5 years?

2. The half – life of Ra – 226 is 1,620 years. If there are 10g initially, how much Ra – 226 is left after 1,000 years?

3, The number of United States citizens *y* (in millions) who traveled to foreign countries in the years 1988 through 1996 are shown in the table below., where $t = 8$ represents the year 1988.

t	8	9	10	11	12	13	14	15	16
y	40.7	41.1	44.6	41.6	43.9	44.4	46.5	50.8	52.3

a) Use the regression capabilities of your graphing calculator to find an exponential model that fits the data.

b) According to the model, is the number of travelers increasing or decreasing? At what rate?

c) Using your model, how many travelers were there in 1980? 1974? 2006?

d) Why is it important to let $t = 8$ represent the year 1988? [Try answering question *c* using the actual year.]

4. ***Without a calculator***, evaluate the expression $6x - \frac{2x^{3/2}}{3/2}$ when $x = 9$.

5. Solve the equation $6 - 3 \cdot 5^x = 2$.

6. Complete the following from the textbook: page 26 # 1- 4, 13 - 18