Section 1.3 (cont.)

2) The strength in any signal in a fiber optic cable, such as the type used for telephone and cable TV lines, diminishes 15% for every 10 miles.
a) Find a model for the strength of a signal remaining after any number of miles.
b) How much of the signal is left after 100 miles?
c) How far does a signal go until its strength is down to 1% of the original level?

3) Total per capita health expenditures in the United States for the years 1970 to 1982 are given in the table.
a) Check to see if the increase is approximately exponential.
b) Find an exponential model for the data.
c) According to the model, what was the yearly percentage change in expenditures?

Year	Per Capita Health Expenditures
1970	349
1972	428
1974	521
1976	665
1978	822
1980	1054
1982	1348

4) The amount of an investment of P dollars with 3% interest compounded continuously is modeled by the equation $A(t) = Pe^{0.03t}$ dollars t years after the initial investment. How long will it take this investment to triple?

Section 1.4

1) A company that makes satellite dishes for TV's has asked you to analyze the market. Their biggest competitors are the cable companies. The table shows the percentage of U.S. households with cable (Source: Neilson Media Research). Find a model for this data.

YEAR	'77	'78	'79	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90	'91	'92	'93	'94
PERCENTAGE	16.6	17.9	19.4	22.6	28.3	35.0	40.5	43.7	46.2	48.1	50.5	53.8	57.1	59.0	60.6	61.5	62.5	63.4

2) Tell whether the function is an increasing or decreasing logistic function. Also identify the limiting value of the function and the two horizontal asymptotes.

$$p(x) = \frac{13.667}{1 + 2.34e^{-0.583x}}$$

Section 1.5

1) Identify the curve as concave up or concave down. Indicate the portion of the horizontal axis over which the part of the curve shown is increasing or decreasing.