Name _____ Date _____

Lesson 10: Linear Models

Exit Ticket

Suppose that a cell phone monthly rate plan costs the user 5 cents per minute beyond a fixed monthly fee of $\$20$. This implies that the relationship between monthly cost and monthly number of minutes is linear.

1. Write an equation in words that relates total monthly cost to monthly minutes used. Explain how you found your answer.

2. Write an equation in symbols that relates the total monthly cost in dollars (y) to monthly minutes used (x).

3. What is the cost for a month in which 182 minutes are used? Express your answer in words in the context of this problem.

Name _____ Date _____

Lesson 11: Using Linear Models in a Data Context

Exit Ticket

According to the Bureau of Vital Statistics for the New York City Department of Health and Mental Hygiene, the life expectancy at birth (in years) for New York City babies is as follows.

Year of Birth	2001	2002	2003	2004	2005	2006	2007	2008	2009
Life Expectancy	77.9	78.2	78.5	79.0	79.2	79.7	80.1	80.2	80.6

Data Source: http://www.nyc.gov/html/om/pdf/2012/pr465-12_charts.pdf

a. If you are interested in predicting life expectancy for babies born in a given year, which variable is the independent variable, and which is the dependent variable?

b. Draw a scatter plot to determine if there appears to be a linear relationship between the year of birth and life expectancy.

c. Fit a line to the data. Show your work.

d. Based on the context of the problem, interpret in words the intercept and slope of the line you found in part (c).

e. Use your line to predict life expectancy for babies born in New York City in 2010.

Name _____ Date _____

Lesson 12: Nonlinear Models in a Data Context (Optional)

Exit Ticket

The table shows the population of New York City from 1850 to 2000 for every 50 years.

Year	Population	Population Growth (change over 50-year time period)
1850	515,547	–
1900	3,437,202	
1950	7,891,957	
2000	8,008,278	

Data Source: www.census.gov

1. Find the growth of the population from 1850 to 1900. Write your answer in the table in the row for the year 1900.

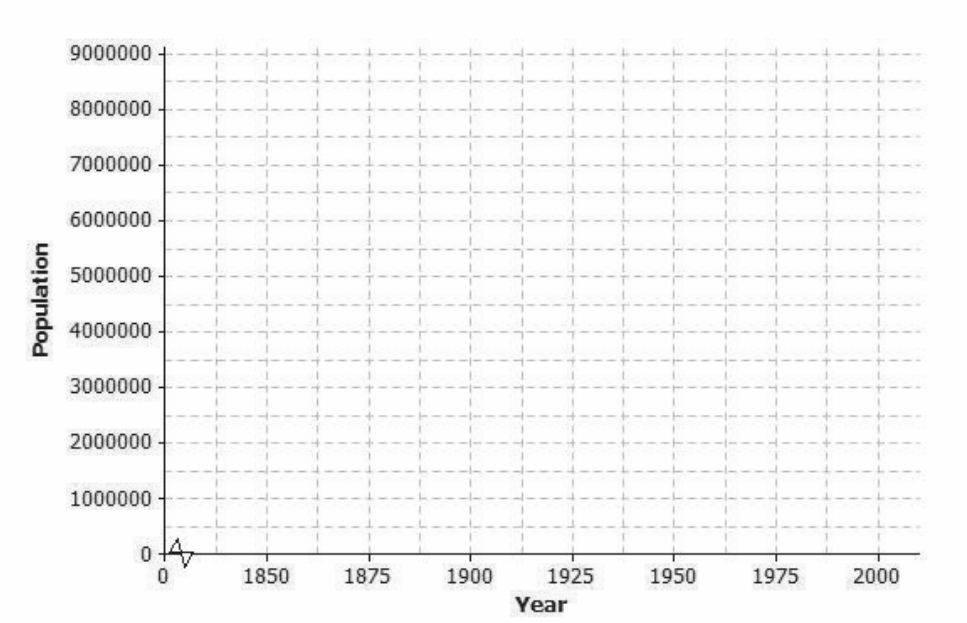
2. Find the growth of the population from 1900 to 1950. Write your answer in the table in the row for the year 1950.

3. Find the growth of the population from 1950 to 2000. Write your answer in the table in the row for the year 2000.

4. Does it appear that a linear model is a good fit for the data? Why or why not?

5. Describe how the population changes as the years increase.

6. Construct a scatter plot of time versus population on the grid below. Draw a line or curve that you feel reasonably describes the data.



7. Estimate the population of New York City in 1975. Explain how you found your estimate.