**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period:\_\_\_\_\_\_**

Below is a table of the population of Burleigh County of the past 100 years. Use this table to create a scatterplot. Use the Year as your x-value and Population as your y-value. Include labels and a title.

|  |  |
| --- | --- |
| **Year** | **Population** |
| 1900 | 6081 |
| 1910 | 13,087 |
| 1920 | 15,578 |
| 1930 | 19,769 |
| 1940 | 22,736 |
| 1950 | 25,673 |
| 1960 | 34,016 |
| 1970 | 40,714 |
| 1980 | 54,811 |
| 1990 | 60,131 |
| 2000 | 69,416 |
| 2010 | 81,308 |

1. Would it be reasonable for your graph to be represented with a linear model?

(1 pt)

2. Using a graphing calculator write the equation of a line of best fit. Equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (2 pts)

3. Sketch your line of best fit onto your scatterplot. (2 pts)

4. What is the slope of the line and what does the slope of the line represent in terms of this problem? (Use a complete sentence or sentences. (2 pts)

5. Use your equation or line to predict the population of Burleigh County in 2015.

(2 pts)

6. Based on this prediction, is this linear model a reasonalbe model? Why or why not?

**Read the following scenario and answer the following questions.**

Mitch wants to save some money to purchase his own car. He gets two part-time jobs during summer vacation. The first, working as a busboy at a local restaurant, pays $6 per hour. The second, a lifeguard, pays $7.50 per hour. He would like to earn $150 per week before taxes.

6. Write an equation that models the different amounts of time he can work each job per week. (2 pts)

7. Find 3 possible combinations of hours Mitch could work at each job to make $150 a week. (3 pts)

8. If Mitch saves 80% of his income, how much will he have saved by the end of 12 weeks of summer vacation? (2 pts)