The table below shows the population data from the U.S. Census since 1900. Use the table below to:
a. Find a linear model. (Let x represent the number of years after 1900.)
b. Use the model to re-create the table, keeping the same input, but now using the predicted values as the output.
c. Create a residual plot.
d. Decide based on the residual plot if you think a linear model is best. Justify your response.

| ACTUAL |  | PREDJCTED |  | RESJDUAL |
| :---: | :---: | :---: | :---: | :---: |
| Year | Population (in millions) | Year | Population (in millions) | Actual Predicted |
| 1900 | 76 | 1900 |  |  |
| 1910 | 92 | 1910 |  |  |
| 1920 | 106 | 1920 |  |  |
| 1930 | 123 | 1930 |  |  |
| 1940 | 132 | 1940 |  |  |
| 1950 | 151 | 1950 |  |  |
| 1960 | 179 | 1960 |  |  |
| 1970 | 203 | 1970 |  |  |
| 1980 | 227 | 1980 |  |  |
| 1990 | 249 | 1990 |  |  |
| 2000 | 281 | 2000 |  |  |
| 2010 | 309 | 2010 |  |  |

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Now use the graphing calculator to find the exponential regression. $\qquad$

Now find the quadratic regression.
Of the three models, which model do you think would be best? Justify your answer using complete sentences.

