Project: Population The table shows the populations (in millions) of the United States for selected years from 1790 through 2010. (*Source: U.S. Census Bureau*)

DATA Spreadsheet at LarsonPrecalculus.com

Year	Population, P
1790	3.929
1800	5.308
1810	7.240
1820	9.638
1830	12.866
1840	17.069
1850	23.192
1860	31.443
1870	39.818
1880	50.189
1890	62.980
1900	76.212
1910	92.228
1920	106.022
1930	123.203
1940	132.165
1950	151.326
1960	179.323
1970	203.302
1980	226.542
1990	248.718
2000	281.425
2010	308.746

(a) Use a graphing utility to plot the data. Let t represent the year, with $t = 0$ corresponding to 1800.

(b) Use the *regression* feature of the graphing utility to find a quadratic model for the data.

(c) Use the graphing utility to graph the model from part (b) and the original data in the same viewing window. How well does the model fit the data? Explain your reasoning.

(d) Consider the equation $0.00676t^2 + 0.0072t + 5.911 = 330$. Use the discriminant to determine the number of solutions of the equation.

(e) Solve the equation from part (d) algebraically. Interpret the solution(s) in the context of the problem.

(f) Use the internet to find if the present U.S. population is over 330 million. Compare your answer with your answer from part (d).