2.3. **6.** Use Newton's method to find solutions accurate to within 10^{-5} for the following problems.

a. $e^x + 2^{-x} + 2\cos x - 6 = 0$ for $1 \le x \le 2$

b. $\ln(x-1) + \cos(x-1) = 0$ for $1.3 \le x \le 2$

c. $2x\cos 2x - (x-2)^2 = 0$ for $2 \le x \le 3$ and $3 \le x \le 4$

d. $(x-2)^2 - \ln x = 0$ for $1 \le x \le 2$ and $e \le x \le 4$

e. $e^x - 3x^2 = 0$ for $0 \le x \le 1$ and $3 \le x \le 5$

f. $\sin x - e^{-x} = 0$ for $0 \le x \le 1$, $3 \le x \le 4$ and $6 \le x \le 7$

2.3. **31.** The logistic population growth model is described by an equation of the form

$$P(t) = \frac{P_L}{1 - ce^{-kt}},$$

where P_L, c, and $k > 0$ are constants, and $P(t)$ is the population at time t. P_L represents the limiting value of the population since $\lim_{t\to\infty} P(t) = P_L$. Use the census data for the years 1950, 1960, and 1970 listed in the table on page 101 to determine the constants P_L, c, and k for a logistic growth model. Use the logistic model to predict the population of the United States in 1980 and in 2010, assuming $t = 0$ at 1950. Compare the 1980 prediction to the actual value.