Example1: Solve each equation.

a. $\log_3 x = 4$ **b.** $\ln x - \ln 2 = 0$ **c.** $\log_5 x = \frac{1}{2}$ **d.** $\ln x = \frac{2}{3}$

Example 2: Solve each logarithmic equation.

a. $\log_4(3x+2) = \log_4(6-x)$ **b.** $\log_3(5x+13) - \log_3 6 = \log_3 3x$

Example 3: Solve each logarithmic equation.

a. $6 + 3\ln x = 4$

b. $7 + 3\ln x = 5$

Example 4: Solve the logarithmic equation. $3\log_4 6x = 9$

Example 5: Solve and check for *extraneous solutions.*

a. $\log x + \log(x-9) = 1$

b. $\log_4 x + \log_4 (x-1) = \frac{1}{2}$

Example 6: The number y of endangered animal species on a protected wildlife preserve from 1990 to 2004 can be modeled by $y = -117 + 159\ln t, \quad 10 \le t \le 24$, where t represents the year, with t = 10 corresponding to 1990. During which year did the number of endangered animal species reach 342?

Homework: Page 251-254 #9, 11, 81-111 odd, 125, 127, and 133