Name _____ Date _____

Practice 5.4: Solving Log & Exponential Equations

1. Simplify.

a. $log_a(a^x)$

b. $ln(e^x)$

c. $a^{\log_a(x)}$

d. $e^{\ln(x)}$

2. Simplify.

a. $log_4(4^7)$

b. $ln(e^6)$

c. $3^{\log_3(8)}$

d. $e^{\ln(3x-2)}$

3. Solve the following Exponential Equations.

a. $5^x = 625$

b. $e^x = 22$

c. $10^{4x} = 100{,}000{,}000$

d. $e^{6x} = 36$

e. $2^{4x} - 8 = 248$

f. $3e^{(x+1)} + 1 = 28$

g. $3^{(2x-1)} + 4 = 85$

h. $12e^{(3x+2)} - 11 = 25$

4. Solve the following Log Equations.

a. $log(x) = 4$

b. $ln(x) = 2$

c. $log_4(2x) = 3$

d. $2ln(3x) = 10$

e. $5log(x + 3) = 20$

f. $4 = ln(x - 2) + 1$

g. $3log_2(8x) = 12$

h. $ln(2x + 1)^2 - 7 = 13$

5. Solve.

a. $\dfrac{400}{1+e^{-x}} = 200$

b. $ln(x + 1)^2 = 2$

c. $log_4(x) - log_4(x - 1) = {}^1/_2$

d. $ln(x + 4) + ln(x + 3) = ln(x + 7)$