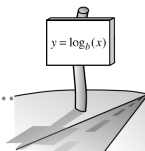


**5.2.3** How can I solve it?

Solving Exponential and Logarithmic Equations

**#82 SOLVING LOGARITHMIC EQUATIONS**

Solve each of the following equations. Give exact solutions.

a.  $\log_7(x^2) = \log_7(8x - 15)$

b.  $\log_2(x^3) + \log_2(x) - \log_2(2x) = 6$

c.  $\log_7(x - 4) + \log_7(x + 2) = 1$

d.  $3\ln(x) = \ln(e^5) - 2$

$$e. -9\ln(x + 1) = -8$$

$$f. \ln(x + 8) - \ln(x - 4) = 10$$

**Log Practice:**

1) Use your properties of logarithms to rewrite each of the following expressions. Use a calculator to verify your answers.

a.  $\log(5) + \log(7)$

b.  $\ln(50) + \ln(100) - \ln(25)$

c.  $\log(17^3)$

d.  $\ln(4^{27}) + \ln(4)$

e.  $\log_2(M) + 2\log_2(N)$

f.  $\ln(a) - \ln(b) + \ln(c)$

2) Evaluate each the following expressions without a calculator.

a.  $\log(1)$

b.  $\ln(1)$

c.  $\log(10^3)$

d.  $\ln(e^3)$