# Manipulating Logs to Solve for x

Examples:

a) $\log_2(x+2) = 5$

b) $\log_3(5) - \log_3(x+1) = 2$

c) $\log_7(x-2) + \log_7(x-8) = 1$

Rewrite each log as an exponential, then solve each expression for x (to the nearest hundredth).

1. $\log_3(x+4) = 4$

2. $\log_3 24x - \log_3 6 = 8$

3. $\log_{17}(344 - 5x) = 2$

4.  $\log_4 x + \log_4 (x+6) = 2$

5.  $\log_{209} 209^x - 3 = 17$

6.  $\log_2 x + \log_2 (x-4) = 5$

7.  $\log_3 (4x) - \log_3 (x+3) = 2$

8.  $3 \log 10^x - 5 = 10$

9.  $\log_2 5x - \log_2 (x+6) = 3$

10.  $\log_5 (4 + x^2) + 2 = 5$

11.  $2 \log_7 x - \log_7 7 = 3$

12.  $\log_6 x + \log_6 12 = 2$

# OVERHEAD PROBLEMS

CHANGE EACH EQUATION TO AN EXPONENTIAL
EQUATION, THEN SOLVE FOR X.

A) $\log_2(x+2)=5$

B) $\log_3(5)-\log_3(x+1)=2$

C) $\log_7(x-2)+\log_7(x-8)=1$