

## Harder Logarithmic Equations

Date \_\_\_\_\_ Period \_\_\_\_\_

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**Solve each equation. Round your answers to the nearest ten-thousandth.**

1)  $\log_7 10 + \log_7 (1 - 5x^2) = 1$

2)  $\log_8 (5x^2 + 3) + \log_8 5 = 2$

3)  $\log_7 (2x^2 - 10) + \log_7 5 = \log_7 40$

4)  $\log_9 4 - \log_9 (-4x - 10) = 1$

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

6)  $\log_8 (x + 2) - \log_8 (x - 6) = \log_8 27$

7)  $\log_7 (x + 3) - \log_7 (x + 1) = 2$

8)  $\log_9 5 - \log_9 (-x - 1) = 1$

9)  $\log (x + 3) - \log (x + 2) = \log 13$

10)  $\log 5 + \log (3x^2 + 2) = 1$

11)  $\log_4 (2x^2 - 10) - \log_4 9 = 1$

12)  $\log_6 (x + 4) - \log_6 (x + 2) = \log_6 18$

$$13) \log_2 3 - \log_2 (-3x - 8) = 3$$

$$14) \log_9 6 - \log_9 (-2x - 10) = \log_9 12$$

$$15) \log_3 10 - \log_3 (2x - 9) = 1$$

$$16) \log_3 6 - \log_3 (-5x - 3) = \log_3 80$$

$$17) \log_3 6 - \log_3 (-3x - 1) = \log_3 5$$

$$18) \log_2 (2x^2 + 8) - \log_2 10 = 2$$

$$19) \log_3 4 - \log_3 (8 - 3x) = 1$$

$$20) \log_5 3 - \log_5 (5x + 8) = 1$$

$$21) \log_3 10 - \log_3 (7 - 4x) = 1$$

$$22) \log 2 + \log (6 - x^2) = 1$$

$$23) \log_6 (4x^2 - 9) - \log_6 5 = 3$$

$$24) \log_8 4 - \log_8 (-3x - 5) = \log_8 68$$

$$25) \log_3 (x + 4) - \log_3 (x - 4) = 3$$