

9.5 Solving Logarithmic Equations - Properties

Solve each equation. Round your answers to the nearest hundredth. Check for extraneous solutions.

1) $\log 2 + \log x = \log 8$

2) $\log x - \log 4 = \log 38$

3) $\log x - \log 3 = \log 6$

4) $\log x + \log 2 = \log 20$

5) $\log_9 (x + 2) - \log_9 2 = 1$

6) $\log_8 2 + \log_8 (x + 8) = 1$

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

8) $\log_2 5 - \log_2 (x - 5) = 1$

$$9) \log_4 (x - 5) + \log_4 (x + 1) = 2$$

$$10) \log_6 (x - 9) + \log_6 (x + 7) = 2$$

$$11) \log_8 (4x^2 + 4) + \log_8 2 = 1$$

$$12) \log_6 (3x^2 - 10) + \log_6 3 = 1$$

CHALLENGE: Solve each equation.

$$13) \ln (x - 16) + \ln (x - 3) = \ln 68$$

$$14) \ln 4 - \ln (-5x - 8) = 1$$

$$15) \ln (3x^2 + 1) - \ln 4 = \ln 61$$

$$16) \ln (1 - x) - \ln 8 = 5$$