Name_____ ID: 1

9.4 Solving Logarithmic Equations

Date_____ Period____

Solve each equation. Round your answers to the nearest hundredth.

1) $\log_{14}(4n + 4) = \log_{14}(5n + 4)$

2) $\log_{12}(3n - 4) = \log_{12}(-4n + 10)$

3) $\log_9(-3v - 1) = \log_9(-5v - 2)$

4) $\log_{20}(9 - 2n) = \log_{20} -5n$

5) $\log_{19}(-x + 8) = \log_{19} 5$

6) $\log(4x + 8) = \log(8 - x)$

7) $\log_{17}(-b + 1) = \log_{17}(4b - 6)$

8) $\log_{19}(n + 5) = \log_{19}(1 - n)$

9) $\ln -2r = \ln(3r + 4)$

10) $\log 2x = \log 8$

11) $\log_3 (-15n - 3) = \log_3 (n^2 + 53)$

12) $\log_8 (20 + p) = \log_8 p^2$

13) $\log_{12} (36 + 3r) = \log_{12} (r^2 + 3r)$

14) $\log_4 (60 + 2x^2) = \log_4 (3x^2 + 4x)$

15) $\log_{20} (n^2 + 4n) = \log_{20} (30 - 3n)$

16) $\log_{14} (n^2 + 20) = \log_{14} (-10n - 1)$

CHALLENGE: Solve each equation.

17) $\log_9 (-x^2 - 8x) = \log_9 -2x^2$

18) $\log_{12} (v^2 - 37) = \log_{12} -1$

19) $\log_6 (2n^2 + 7n) = \log_6 (-6 + n^2)$

20) $\log_{20} (2n - 3) = \log_{20} (n^2 - 18)$