Math 3   Name_____

Unit 7.6 Logarithm Equations PRACTICE   Period____

Solve each equation.

1) $\log x + \log 8 = \log 42$

$$\left\{\frac{21}{4}\right\}$$

2) $\ln (x + 3) - \ln x = 3$

$$\left\{-\frac{3}{1 - e^3}\right\}$$

3) $\log_6 x - \log_6 (x - 1) = \log_6 75$

$$\left\{\frac{75}{74}\right\}$$

4) $\log_8 x - \log_8 (x - 5) = 1$

$$\left\{\frac{40}{7}\right\}$$

5) $\log_3 4 - \log_3 x = 2$

$$\left\{\frac{4}{9}\right\}$$

6) $\log_2 3 - \log_2 x = 4$

$$\left\{\frac{3}{16}\right\}$$

7) $\log_3 (x + 3) - \log_3 x = \log_3 80$

$$\left\{\frac{3}{79}\right\}$$

8) $\ln x + \ln 5 = \ln 57$

$$\left\{\frac{57}{5}\right\}$$

9) $\log_8 2 - \log_8 -x = \log_8 2$

$$\{-1\}$$

10) $\log_6 (x + 6) + \log_6 7 = 3$

$$\left\{\frac{174}{7}\right\}$$

11) $\ln 5 - \ln (x + 3) = 4$

$$\left\{\frac{5 - 3e^4}{e^4}\right\}$$

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

$$\left\{\frac{91}{2}\right\}$$

13) $\log_3 6 - \log_3 2x = 1$

$$\{1\}$$

14) $\log_4 -2x + \log_4 9 = 4$

$$\left\{-\frac{128}{9}\right\}$$

15) $\log_2 x - \log_2 (x - 3) = 4$

$$\left\{\frac{16}{5}\right\}$$

16) $\log_3 -2x + \log_3 6 = 3$

$$\left\{-\frac{9}{4}\right\}$$

17) $\log_7 3 - \log_7 (2x - 1) = 2$

$$\left\{\frac{26}{49}\right\}$$

18) $\log_2 (3x - 5) + \log_2 7 = 5$

$$\left\{\frac{67}{21}\right\}$$

19) $\log_2 (3x + 6) + \log_2 6 = 2$

$$\left\{-\frac{16}{9}\right\}$$

20) $\log_3 (4x - 8) + \log_3 6 = 3$

$$\left\{\frac{25}{8}\right\}$$

21) $\log_7 (x - 1) - \log_7 (x - 5) = 2$

$$\left\{\frac{61}{12}\right\}$$

22) $\log_6 10 - \log_6 (3x + 10) = 2$

$$\left\{-\frac{175}{54}\right\}$$

23) $\log_5 9 - \log_5 (4x + 7) = \log_5 78$

$$\left\{-\frac{179}{104}\right\}$$

24) $\log_6 (x + 2) - \log_6 (x + 1) = 2$

$$\left\{-\frac{34}{35}\right\}$$

25) $\ln x - \ln 2 = 4$

$$\left\{2e^4\right\}$$

26) $\log_2 x - \log_2 (x - 4) = 3$

$$\left\{\frac{32}{7}\right\}$$

27) $\log_2 (4 - x) - \log_2 3 = 2$

$$\{-8\}$$

28) $\log_5 x + \log_5 3 = 2$

$$\left\{\frac{25}{3}\right\}$$

29) $\log_5 (4x - 8) - \log_5 7 = 1$

$$\left\{\frac{43}{4}\right\}$$

30) $\log_6 9 + \log_6 (-5x - 3) = 3$

$$\left\{-\frac{27}{5}\right\}$$

31) $\log_4 x - \log_4 (x - 4) = \log_4 6$

$$\left\{\frac{24}{5}\right\}$$

32) $\log_7 x - \log_7 (x - 1) = 1$

$$\left\{\frac{7}{6}\right\}$$