Practice with Log Properties

Key

1. $\log_7(4x + 35) = 3$

    $X = 77$

2. $\log_2 x + \log_2(x - 12) = 6$

    $X = 16 \quad X = 4$

3. $\log_{19}(x - 4) - \log_{19} 5 = \log_{19} 3$

    $X = 19$

4. $3\log_6 5 = \log_6 5x$

    $X = 25$

5. $\log_{17} 2 + \log_{17} 4x = 4\log_{17} 4$

    $X = 32$

6. $\log_8 52x - \log_8 13 = 2$

    $X = 16$

7. $\log_9(2x - 2) - \log_9(x - 5) = \log_9 6$

$$x = 7$$

8. $\log_2(x + 2) + \log_2 6 = 4$

$$x = \frac{2}{3}$$

9. $6\log_5 2 - 3\log_5 2 = \log_5 32x$

$$x = \frac{1}{4}$$

10. $3\log_7 x = 2\log_7 8$

$$x = 4$$

11. $\log_5 4 + \log_5 2x = \log_5 24$

$$x = 3$$

12. $\frac{1}{2}\log_6 25 + \log_6 x = \log_6 20$

$$x = 4$$

13. $log_2 4 - log_2(x + 3) = log_2 8$

$$x = -\frac{5}{2}$$

14. $log_7(5x - 1) = 2$

$$x = 10$$

15. $8log_7 4 = 2log_7 x$

$$x = 256$$

16. $log_6 2x + log_6 8 = log_6 80$

$$x = 5$$

17. $log_2 x - log_2 3 = log_2 7$

$$x = 21$$

18. $3log_8 2 - log_8 4 = log_8 x$

$$x = 2$$

19. $\log_{14}(3x + 4) = 0$

$x = -1$

20. $\log_3 x + \log_3 3 = 3$

$x = 9$

21. $\log_2(x + 4) - \log_2(x - 3) = 3$

$x = 4$

22. $\log_4(x + 1) - \log_4(x - 2) = 1$

$x = 3$

23. $2\log_3 x = 4$

$x = 9$

24. $\log_8 48 - \log_8 x = \log_8 4$

$x = 12$

25. $\log_9(3x + 14) - \log_9 5 = \log_9 2x$

$x = 2$

26. $\log_{15}(x + 3) + \log_{15}x = \log_{15}4$

$x = \cancel{-4} \quad x = 1$

27. $\log_{22}(x + 4) - \log_{22}x = \log_{22}(x + 1)$

$x = 2$

$x = \cancel{-2}$

28. $\log_{41}(x^2 + 4) - \log_{41}(x + 6) = \log_{41}1$

$x = 2$

$x = -1$

29. $\log 4 + \log x = 2$

$x = 25$

30. $\log_8(x - 3) + \log_8(x + 4) = 1$

$x = \cancel{-5}$

$x = 4$