

3.4 Solving Logarithmic and Exponential Equations (day 2)

Extra Practice: pg. 196 (1-7, 11-19, 23-47, 51-53, 61-65) odd

Complete the following exercises on your own paper:

Solve each equation.

1. $4^{x+7} = 8^{x+3}$

3. $49^{x+4} = 7^{18-x}$

5. $\left(\frac{9}{16}\right)^{3x-2} = \left(\frac{3}{4}\right)^{5x+4}$

7. $25^{\frac{x}{3}} = 5^{x-4}$

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Solve.

11. $\ln a = 4$

13. $\ln (-2) = c$

15. $14 + 20 \ln 7x = 54$

17. $7000 \ln h = -21,000$

19. $12,000 \log_2 k = 192,000$

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Solve each equation.

23. $\log_8 (x^2 + 11) = \log_8 92$

25. $\log_7 6x = \log_7 9 + \log_7 (x - 4)$

27. $\log_{11} 3x = \log_{11} (x + 5) - \log_{11} 2$

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Solve. Round your answers to the nearest hundredth.

29. $1.8^x = 9.6$

31. $e^{3x+1} = 51$

33. $2e^{7x} = 84$

35. $e^{2x} + 5 = 16$

37. $0.75e^{3.4x} - 0.3 = 80.1$

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Solve each equation.

39. $7^{2x+1} = 3^{x+3}$

41. $9^{x+2} = 2^{5x-4}$

43. $3^{4x+3} = 8^{-x+2}$

45. $6^{x-2} = 5^{2x+3}$

47. $2^{5x+6} = 4^{2x+1}$

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Solve.

51. $e^{2x} - 15e^x + 56 = 0$

53. $6e^{2x} - 5e^x = 6$

61. $\ln x + \ln (x + 7) = \ln 18$

63. $\ln (x - 3) + \ln (2x + 3) = \ln (-4x^2)$

65. $\log (x + 6) = \log (8x) - \log (3x + 2)$