DUE: A-day Tuesday 12/14/15, B-day Monday 12/11/15

Pre-Calculus: Lesson 3.4 Solving for Exponential & Log functions p. 217 #25-53 odd , #91-101 odd.

Please complete the assignment using the "tri-fold" method (You may use www.calcchat.com to check you

Solving an Exponential Equation **In Exercises 23–36, solve the exponential equation.**

23. $4^x = 16$

24. $3^x = 243$

25. $5^x = \frac{1}{625}$

26. $7^x = \frac{1}{49}$

27. $\left(\frac{1}{8}\right)^x = 64$

28. $\left(\frac{1}{2}\right)^x = 32$

29. $\left(\frac{2}{3}\right)^x = \frac{81}{16}$

30. $\left(\frac{3}{4}\right)^x = \frac{27}{64}$

31. $e^x = 14$

32. $e^x = 66$

33. $6(10^x) = 216$

34. $5(8^x) = 325$

35. $2^{x+3} = 256$

36. $3^{x-1} = \frac{1}{81}$

Solving a Logarithmic Equation **In Exercises 37–46, solve the logarithmic equation.**

37. $\ln x - \ln 5 = 0$

38. $\ln x - \ln 2 = 0$

39. $\ln x = -9$

40. $\ln x = -14$

41. $\log_x 625 = 4$

42. $\log_x 25 = 2$

43. $\log_{10} x = -1$

44. $\log_{10} x = -\frac{1}{2}$

45. $\ln(2x - 1) = 5$

46. $\ln(3x + 5) = 8$

Using Inverse Properties **In Exercises 47–54, simplify the expression.**

47. $\ln e^{x^2}$

48. $\ln e^{2x-1}$

49. $e^{\ln x^2}$

50. $e^{\ln(x^2+2)}$

51. $-1 + \ln e^{2x}$

52. $-4 + e^{\ln x^4}$

53. $5 + e^{\ln(x^2+1)}$

54. $3 - \ln(e^{x^2+2})$

Solving a Logarithmic Equation **In Exercises 91–112, solve the logarithmic equation algebraically. Round the result to three decimal places. Verify your answer using a graphing utility.**

91. $\ln x = -3$

92. $\ln x = -4$

93. $\ln 4x = 2.1$

94. $\ln 2x = 1.5$

95. $\log_5(3x + 2) = \log_5(6 - x)$

96. $\log_9(4 + x) = \log_9(2x - 1)$

97. $-2 + 2 \ln 3x = 17$

98. $3 + 2 \ln x = 10$

99. $7 \log_4(0.6x) = 12$

100. $4 \log_{10}(x - 6) = 11$

101. $\log_{10}(z - 3) = 2$

102. $\log_{10} x^2 = 6$