Name_____ Class_____Date_____

Write each expression as a single natural logarithm.

2. $3 \ln 3 + \ln 9$ **3.** $a \ln 4 - \ln b$

4. $\ln z - 3 \ln x$ **6.** $4 \ln x + 3 \ln y$

8. $3 \ln a - b \ln 2$

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

19. $\ln e^x = 3$ **20.** $3 \ln e^{2x} = 12$ **21.** $\ln e^{x+5} = 17$

25. $\ln (3x + 4) = 5$

Use natural logarithms to solve each equation. Round your answer to the nearest hundredth.

40. $e^{2x} = 25$ **41.** $e^{\sqrt{5x}} = 20$ **42.** $e^{\ln x} = 21$ **43.** $e^{x+6} - 5 = 1$

$x + 2$

e