

PROBLEM SET 8-6
(Natural Logs)

Solve each equation; round answers to the nearest ten-thousandth.

1. $\ln 3x = 6$

2. $\ln x = -2$

3. $\ln (2x + 3) = 8$

4. $1.1 + \ln x^2 = 6$

5. $\ln 4x^2 = 3$

6. $2 \ln 2x^2 = 1$

7. $\ln x - 3 \ln 3 = 3$

8. $\ln (5x - 3)^{\frac{1}{3}} = 2$

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

10. $e^x = 18$

11. $e^{x+1} = 30$

12. $e^{2x} = 12$

13. $e^{\frac{x}{5}} + 4 = 7$

14. $4e^{x+2} = 32$

15. $2e^{x-2} = e^x + 7$

Simplify each expression mentally.

16. $\ln e$

17. $\ln e^{10}$

18. $10 \ln e$

Determine if each statement is *always*, *sometimes* or *never* true.

19. $\ln e^x > 1$

20. $\ln e^x = \ln e^x + 1$

21. $\ln x = \log_e x$