

DIRECTIONS: Write each equation in exponential form.

1. $\ln 100 = 4.61$

2. $\ln \frac{1}{3} = -1.10$

DIRECTIONS: Write each equation in logarithmic form.

3. $e^7 = 1097$

4. $\sqrt[3]{e} = 1.40$

DIRECTIONS: Simplify

5. $\ln e^9$

6. $\ln \frac{1}{e^7}$

7. $\ln \sqrt{e}$

DIRECTIONS: Write as a single logarithm.

8. $\ln 8 + \ln 2$

9. $\ln 7 + \frac{1}{2} \ln 9$

10. $4 \ln 2 - \ln 3 - 1$

DIRECTIONS: Solve for x . Leave answers in terms of e .

11. $\ln x = 3$

12. $\ln(x - 4) = -1$

13. $\ln x^2 = 9$

DIRECTIONS: Solve for x . Leave answers in terms of natural logarithms.

14. $e^x = 2$

15. $e^{2x} = 25$

16. $e^{x-2} = 2$