

Advanced Algebra

Name_____

Change of Base, Natural Log, and e **Evaluate each logarithmic expression to the nearest hundredth.**

1. $\log_6 87$ _____

2. $\log_3 15$ _____

3. $\log_5 2$ _____

4. $\log_8 3$ _____

5. $\log_9 1.43$ _____

6. $\log_{1/2} 8$ _____

7. $\log_7 \frac{1}{50}$ _____

8. $1 - \log_5 21$ _____

9. $4 + \log_5 125$ _____

Evaluate each expression to the nearest thousandth. If the expression is undefined, write undefined.

11. e^9 _____

12. $e^{3.4}$ _____

13. $3e^{0.05}$ _____

14. $3e^{-0.257}$ _____

15. $e^{\frac{1}{4}}$ _____

16. $\ln 7$ _____

17. $\ln 99,999$ _____

18. $\ln 0.994$ _____

19. $\ln \sqrt{5}$ _____

20. $\ln(-3)$ _____

Simplify each expression.

21. $e^{\ln 5}$ _____

22. $e^{2 \ln 5}$ _____

23. $\ln e^4$ _____

24. $2 \ln e^4$ _____

Write an equivalent exponential or logarithmic equation.

25. $e^x = 1$ _____

26. $\ln 5 \approx 1.61$ _____

27. $e^{0.69} \approx 1.99$ _____

Solve each equation for by using the natural log function. Round your answer to the nearest hundredth.

28. $1.3^x = 8$ _____

29. $36^{2x} = 20$ _____

30. $2^{\frac{-1}{3}x} = 10$ _____