

Math 113 Worksheet 4.2a

to be turned in next class for a grade

Evaluate the following logarithms without using a calculator.

1. $\log_2 8$

2. $\log_3(81)$

3. $\log_4 16$

4. $\log_5(125)$

5. $\log_2\left(\frac{1}{8}\right)$

6. $\log_3 \frac{1}{81}$

7. $\log_4 \frac{1}{16}$

8. $\log_5\left(\frac{1}{125}\right)$

9. $\log_{\frac{1}{2}}(8)$

10. $\log_{\frac{1}{3}}(81)$

11. $\log_{\frac{1}{4}}(16)$

12. $\log_{\frac{1}{5}} 125$

13. $\log_{\sqrt{2}}(8)$

14. $\log_{\sqrt{3}}(81)$

15. $\log_{\sqrt{4}}(16)$

16. $\log_{\sqrt{5}} 125$

17. $\log_8 2$

18. $\log_{81}(3)$

19. $\log_{16} 4$

20. $\log_{125}(5)$

21. $\log_2 1$

22. $\log_{57}(1)$

23. $\log 1$

24. $\ln(1)$

25. $\log(1,000,000)$

26. $\log\left(\frac{1}{10}\right)$

27. $\log 10$

28. $\log 0.0001$

29. $\ln e$

30. $\ln\left(\frac{1}{e}\right)$

31. $\ln \sqrt{e}$

32. $\ln\left(e^{\frac{3}{2}}\right)$

33. $\log\left(10^{\frac{3}{2}}\right)$

34. $\log\left(\sqrt{10^5}\right)$

35. $\log_{15}\left(15^{-\frac{4}{3}}\right)$

36. $\ln(\sqrt{e})^5$

37. $\log_8(32)$ [Hint: Rewrite 8 and 32 as powers of 2.]

38. $\log_9(27)$

39. Let $f(x) = e^x$ and $g(x) = \ln x$. Evaluate $(f \circ g)(1)$, $(f \circ g)(x)$, $(g \circ f)(1)$, and $(g \circ f)(x)$.