Algebra 2

Name KEY

Day 1 HW – Calculator Work & Rewriting Logs./Expon.

Rewrite the equation in exponential form.

1) $\ln 7 = 1.945$

$\log_e 7 = 1.945$

$e^{1.945} = 7$

2) $\log 2 = .301$

$\log_{10} 2 = .301$

$10^{.301} = 2$

3) $\ln 1 = 0$

$\log_e 1 = 0$

$e^0 = 1$

4) $\log\left(\frac{1}{100}\right) = -2$

$\log_{10} \frac{1}{100} = -2$

$10^{-2} = \frac{1}{100}$

5) $\ln e = 1$

$\log_e e = 1$

$e^1 = e$

6) $\log 10 = 1$

$\log_{10} 10 = 1$

$10^1 = 10$

Rewrite the equation in logarithmic form.

7) $10^3 = 1000$

$\log_{10} 1000 = 3$

$\log 1000 = 3$

8) $e^2 = 7.389$

$\log_e 7.389 = 2$

$\ln 7.389 = 2$

9) $e^{-1} = \frac{1}{2.718}$

$\log_e \frac{1}{2.718} = -1$

$\ln \frac{1}{2.718} = -1$

10) $10^{-2} = \frac{1}{100}$

$\log_{10} \frac{1}{100} = -2$

$\log \frac{1}{100} = -2$

11) $10^2 = 100$

$\log_{10} 100 = 2$

$\log 100 = 2$

12) $e^7 = 1096.633$

$\log_e 1096.633 = 7$

$\ln 1096.633 = 7$

Use Logarithmic properties to simplify the following: DO NOT USE CALCULATOR

13) $\log 10^{12} = x$

$\log_{10} 10^{12} = x$

$10^x = 10^{12}$

$x = 12$

14) $\ln e^{-21} = x$

$\log_e e^{-21} = x$

$e^x = e^{-21}$

$x = -21$

15) $10^{\log -7} = x$

$\log_{10} x = \log -7$

$\log_{10} x = \log_{10} -7$

$x = -7$

16) $e^{\ln 4} = x$

$\log_e x = \ln 4$

$\ln x = \ln 4$

$x = 4$

Evaluate each expression in your calculator. (Round to 3 decimal places)

1. $(3.4)^{6.8}$ = 4112.033

2. $5000(2^{-1.5})$ = 1767.767

3. $6^{2\pi}$ = 77494.076

4. $5^{-\pi}$ = 0.006

5. $798^{\frac{1}{3}}$ = 9.275

6. $100^{\sqrt{2}}$ = 673.639

7. $e^{\frac{1}{2}}$ = 1.649

8. $e^{-\frac{3}{4}}$ = 0.472

9. $e^{9.2}$ = 9897.129

10. $e^{3.78}$ = 43.816

11. $\log_2 16$ = 4

12. $\log_{27} 9$ = $\frac{2}{3}$

13. $\log_{16}\left(\frac{1}{4}\right)$ = -0.5 or $-\frac{1}{2}$

14. $\log_{10} 0.01$ = -2

15. $\log_2\left(\frac{1}{8}\right)$ = -3

16. $\log_{10} 0.1$ = -1

17. $\log 345$ = 2.538

18. $\log 145$ = 2.161

19. $\log\left(\frac{4}{5}\right)$ = -0.097

20. $\log\left(\frac{25}{2}\right)$ = 1.097

21. $\ln(4+\sqrt{3})$ = 1.746

22. $\ln\sqrt{42}$ = 1.869

23. $6\log 14.8$ = 7.022

24. $-5.5\ln 34$ = -19.395