Log Worksheet I Honors Precalculus

Show work – no calculator

1) Give the domain in interval notation. Explain.

a. $f(x) = \log_a |x| \ (a > 0, a \neq 1)$

b. $f(x) = \log_3 (x^2 - 1)$

c. $f(x) = \log_{1/3} (x^2 + 1)$

2) Simplify

a. $e^{2\ln(\ln(-e\ln(e^{-e})))}$

b. $8^{\frac{-2}{\log_7 4}}$

c. $\log_2 \frac{\sqrt[7]{8}}{4}$

d. $8^{3\log_2 3 - 4\log_2 5}$

3) **Solve each equation for all permissible values of x**

a. $\log_2(\log_3(\log_4 x)) = 1$

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

c. $3^x + 3^{x+1} + 3^{x+2} = 26$

d. $\log_2(x) = \frac{3}{4}\log_2(y) - \frac{1}{4}\log_2(w) + 3$