1.) Rewrite the equation in exponential form.	2.) Rewrite the equation in logarithmic form.
A. $\log_4 16 = 2$ $4^2 = 16$	A. $6^{t-1} = d$ $\log_6 d = t-1$
B. $\log(x+1) = y$ $10^y = (x+1)$	B. $h^6 = 64$ $\log_h 64 = 6$
C. $\ln 5 = t$ $e^t = 5$	C. $e^y = 4$ $\ln 4 = y$
D. $\log_b 35 = 3$ $b^3 = 35$	D. $10^7 = x$ $\log x = 7$

3.) Evaluate the expression (show ALL of your work!):

A. $\log_4 64 + \log_3 81$

7

B. $3\log_2 8 - \log_7 49$

$3\log_2 2^3 - \log_7 7^2$

$9\log_2 2 - 2\log_7 7$

$9(1)$

$9 - 2 = 7$

(A) $\log_4 64 + \log_3 81$

$\log_4 64 = x$ $\log_3 81 = x$

$4^x = 64$ $3^x = 81$

$3 + 4 = 7$

12 $\log_{12} 3$ (6)

$\log_7 7$

4.) Rewrite the log using the change-of-base formula.

Do NOT EVALUATE!

A. $\log_x 27$ $\frac{\log 27}{\log x}$

B. $\log_7 y$ $\frac{\log y}{\log 7}$

5.) Condense the expression; simplify if possible.

A. $3\log_5 a + 4\log_5 b - \log_5 c$

B. $\frac{1}{2}\log_5 a - 2\log_5 b - 8\log_5 c$

(a) $\log_5 a^3 + \log_5 b^4 - \log_5 c$

$\log_5 \frac{a^3 b^4}{c}$

(b) $\log_5 a^{\frac{1}{2}} - \log_5 b^2 - \log_5 c^8$

$\log_5 \frac{\sqrt{a}}{b^2 c^8}$

6.) Expand the expression.

A. $\log \frac{2x^4}{y^2 z}$

B. $\log(10x^2 y^5)$

(a) $2 \cdot x^4 \div y^2 \div z$

$\log 2 + \log x^4 - \log y^2 - \log z$

$\log 2 + 4\log x - 2\log y - \log z$

(b) $\log(10 \cdot x^2 \cdot y^5)$

$\log 10 + \log x^2 + \log y^5$

$1 + 2\log x + 5\log y$

For questions 7, solve for x. Round your answer to the hundredths place when necessary.

7.)

A. $\frac{3^{2x-5}}{2}=3$ $x = 3.32$

B. $e^{x+3}=4$ $x = -1.61$

C. $\ln(x-2)+5=17$ $x = 162,756.79$

D. $\log_2 x+2=5$ $x = 8$

A. $\frac{3^{2x-5}}{2} = 3 \cdot 2$

$3^{2x-5} = 6$

$\log_3 6 = 2x-5$ (+5, +5)

$\frac{\log_3(6)+5}{2} = \frac{2x}{2}$

$3.32 = x$

B. $e^{x+3} = 4$

$\ln 4 = x+3$ (−3, −3)

$\ln(4)-3 = x$

$-1.61 = x$

C. $\ln(x-2)+5=17$ (−5, −5)

$\ln(x-2)=12$

$e^{12} = x-2$ (+2, +2)

$e^{12}+2 = x$

D. $\log_2 x+2=5$ (−2, −2)

$\log_2 x = 3$

$2^3 = x$

$8 = x$