Solving Exponential and Logarithmic Equations using The Laws of Logs

These are the problems that allow students to understand the importance of The Law of Logs from the problems: Addition, Subtraction, Power, Roots.

Given a Logarithmic Equation

Log_B .03	=	-2.4	Change $\text{Log}_B N = E$ to $B^E=N$
$(\text{Log})B^{-2.4}$	=	.03(Log)	Take the Log of both sides
(-2.4) x Log B	=	Log (.03)	Distribute the Log on both sides
(-2.4) x Log B	=	-1.523	Evaluate Log (.03)
(Anti) B	=	(.635)(Anti)	Divide both sides by –2.4 & take AntiLog
B	=	4.315	Check using $B^E=N$ * $(4.315)^{-2.4} = .03$

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Given a Logarithmic Equation

Log_2 35	=	E	Change $\text{Log}_B N = E$ to $B^E=N$
(Log) $.2^E$	=	(35) (log)	Take the of both sides
(E) x Log .2	=	Log (35)	Distribute the Log on both sides
(E) x (-.699)	=	1.544	Evaluate Log (.2) & Log (35)
E	=	1.544 / -.699	Divide both sides by .699
E	=	-2.209	Check N that $.2^{-2.209} = 35$

Process one step shorter… ☺

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