

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

$\text{Log}_B .03$	$=$	-2.4	Change $\text{Log}_B N = E$ to $B^E=N$
$(\text{Log})B^{-2.4}$	$=$	$.03(\text{Log})$	Take the Log of both sides
$(-2.4) \times \text{Log } B$	$=$	$\text{Log } (.03)$	Distribute the Log on both sides
$(-2.4) \times \text{Log } B$	$=$	-1.523	Evaluate Log (.03)
(Anti) B	$=$	$(.635)(\text{Anti})$	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

$\text{Log}_2 35$	$=$	E	Change $\text{Log}_B N = E$ to $B^E=N$
$(\text{Log}) .2^E$	$=$	$(35) (\log)$	Take the of both sides
$(E) \times \text{Log } .2$	$=$	$\text{Log } (35)$	Distribute the Log on both sides
$(E) \times (-.699)$	$=$	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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