Solving Exponential and Logarithmic Equations using The Laws of Logs

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

Given a Exponential Equation

4^P	=	52	Find the Power of 4 that equals 52
(Log) 4^P	=	52 (log)	Take the Log of both sides
(P) x Log 4	=	Log (52)	Distribute the Log on both sides
(P) x .6020	=	1.716	Evaluate Log 4 and Log 52
P	=	1.7.16 / .6020	Divide both sides by .6020
P	=	2.8505	Check N in $10^E = N$

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Given a Exponential Equation

$N^{2.6}$	=	$8.6 \times 10^{+3}$	Find Number to 2.6 Power = 86000
(Log) $N^{2.6}$	=	$(8.6 \times 10^{+3})$ (log)	Take the Log of both sides
(2.6) x Log N	=	$Log (8.6 \times 10^{+3})$	Distribute the Log on both sides
(2.6) x Log N	=	3.9345	Evaluate $Log (8.6 \times 10^{+3})$
N	=	1.7.16 / .6020	Divide both sides by 2.6
(Anti) N	=	2.8505 (Anti)	Take the AntiLog of both sides
N	=	32.6	Check N that $32.6^{2.6} = 8.6 \times 10^{+3}$

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