

Mork, from the planet Ork, brought a table of numbers to Earth. Mindy, a clever mathematician, guesses the table has something to do with logarithms. Help Mindy fill in the missing (Earth) numbers.

A	B	AB	$\frac{A}{B}$	A^B	$\text{Log}_y A$	$\log_y B$	$\log_y AB$	$\log_y \frac{A}{B}$	$\log_y A^B$
3	9	27	.3333	19683	1	2	3	-1	9
81	27	2187	3	3.3814×10^{53}	4	3	7	1	108
12	4	48	3	20736	2.2619	1.2619	3.5238	1	9.0476
2	8		0.25		0.6309	1.8928	2.5237	-1.2619	5.0472
5	$\frac{1}{4}$	1.25	20	1.4953	1.4650	-1.2619		2.7268	0.3662
14	7	98	2			1.7712	4.1734		16.8152
0.2	10	2	.02		-1.4650	2.0959			
$\frac{1}{2}$	6	3			-0.6309				

How would you explain to Mindy how to use the table of log values? What are the patterns that make computing the logs possible?