

MathFLIX CHALLENGE

Patterns: Base 2 Logarithms

John Napier was famous for his work with logarithms, which help us multiply and divide. Logarithms and exponents are related and the exercise below will show you how. Follow the patterns to complete the Base 2 Logarithm table. To find the product of two numbers, use the table and find the log that matches each number. Add the 2 logs. The sum of the logs will correspond to the correct product in the Number column.

Number	Log	$\times 2$	Exponent
1	0	0	2^0
2	1	2	2^1
4	2	2×2	2^2
8	3	$2 \times 2 \times 2$	2^3
16	4		2^4
32	5		
64			
128			
256			
512			
1,024			
2,048			
4,096			
8,192			
16,384			
32,768			
65,536			
131,072			
262,144			
524,288			
1,048,576			
2,097,152			
4,194,304			

Number	256×32	= _____
Log	$8 + 5$	= _____
Number	$131,072 \times 32$	= _____
Log	$17 + \underline{\hspace{1cm}}$	= _____
Number	$64 \times 64 \times 64$	= _____
Log	$6 + 6 + 6$	= _____
Number	128^3	= _____
Log	7	= _____
Number	$16,384 \times 8$	= _____
Log	$14 + 3$	= _____
Number	$16 \times 256 \times 1,024$	= _____
Log	$4 + \underline{\hspace{1cm}} + 10$	= _____
Number	$2,097,152 \div 1,024$	= _____
Log	$21 - 10$	= _____