Number of Divisors

Complete the following steps for each set of numbers.

1. **Generate a prime factorization of each number.**
2. **List all the factors of the number.**
3. **Determine the number of factors.**
4. **Look for patterns and find a connection between the prime factored form of the number and its total number of factors.**

SET A			
#	Prime Factored Form	List of All Factors	Number Of Factors
4			
8			
9			
16			
25			
27			
32			
49			
64			
81			
125			
128			

What connection is there between the prime-factored form of a number and its total number of factors?

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SET B			
#	Prime Factored Form	List of All Factors	Number Of Factors
6			
15			
77			
List 1 more number that has this same # of factors.			

SET C			
#	Prime Factored Form	List of All Factors	Number Of Factors
12			
45			
50			
List 1 more number that has this same # of factors.			
List 3 more numbers that have this same # of factors.			

SET D			
#	Prime Factored Form	List of All Factors	# of Factors
24			
40			
54			
List 1 more number that has this same # of factors.			

What connection is there between the prime-factored form of a number and its total number of factors?

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SET E			
#	Prime Factored Form	List of All Factors	# of Factors
72			
108			
200			
List 1 more number that has this same # of factors.			

SET F			
#	Prime Factored Form	List of All Factors	# of Factors
36			
100			
225			
List 1 more number that has this same # of factors.			

SET G			
#	Prime Factored Form	List of All Factors	# of Factors
144			
324			
List 1 more number that has this same # of factors.			

SET H			
#	Prime Factored Form	List of All Factors	# of Factors
30			
120			
140			
162			
396			

What connection is there between the prime-factored form of a number and its total number of factors?

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