

Fibonacci Numbers and Prime Factorization

1. The start of the Fibonacci sequence is listed in the first row of the table below. What rule is used to determine the next number?

2. In the second row of the table fill in the missing prime factorization.

<i>Fibon. #</i>	1	1	2	3	5	8	13	21	34	55	89	144
<i>Prime factors</i>	<i>n/a</i>	<i>n/a</i>	2	3	5		13				89	

3. Why is *n/a* written under the ones in the sequence?

4. Look at any two consecutive Fibonacci numbers. What can you notice about their prime factors?

5. The next Fibonacci Numbers in the sequence are listed below. Pick any two consecutive Fibonacci numbers and see if the pattern holds. If it does not, make another conjecture. (*it may be helpful to know that : 29, 37, 41, 47, 61, 113, 233, and 1597 are prime numbers*)

... 233, 377, 610, 987, 1597, 2584, 4181, 6765, ...

Fibonacci Prime Mystery: *It has been proven that there is only one square number and only one cubed number, but is there a greatest Prime Fibonacci number? No one knows. The largest known Fibonacci prime was found in 2015. It is the 81,839th number in the sequence and has 17,103 digits.*