

1. Recall that F_n represents the n^{th} Fibonacci number. For convenience, define F_0 to be 0.
 - (a) Write the first eight numbers in the sequence where the n^{th} term in the sequence is given by $F_n + F_{n+2}$.
 - (b) By examining the sequence of numbers in part a, give a method for finding the next number in the sequence (other than the relation described above).
2. Work problems 3, 4, 5, 10, 15 – 17 on pages 57 to 61.
3. Is there an odd/even pattern among Fibonacci numbers? Is it fair to say that one third of the Fibonacci numbers are even, even though there are infinitely many of them?
4. Notice that $F_5 = 5$ and $F_{10} = 55$. What are F_{15} and F_{20} ? Does this suggest a conjecture about divisibility of the numbers F_{5n} ? Recall that the integer d is a divisor of integer m if m is an integer multiple of d , that is if m/d is an integer. Develop and prove the conjecture.
5. Suppose a sequence a_n is defined in the same way as the Fibonacci sequence except that the first two terms are not 1's. Suppose $a_7 = 16$ and $a_9 = 42$. What is a_{10} ?