



Lewis & Clark College

Department of Mathematical Sciences

Problem of the Week #6

(Spring 2018)

The sequence F_n of Fibonacci numbers begins with $F_1 = 1$, $F_2 = 1$, and for $n \geq 3$, $F_n = F_{n-1} + F_{n-2}$. Thus the first 10 Fibonacci numbers are 1, 1, 2, 3, 5, 8, 13, 21, 34, and 55. Consider the following series

$$\sum_{n=1}^{\infty} \arctan\left(\frac{1}{F_{2n+1}}\right).$$

Determine whether the series converges or diverges. If the series converges, find the sum of the series. Please justify your answer.

- Many thanks to Dr. Roger Nelsen for contributing this *Problem Of the Week*.
- Solvers should include their name, address, and status at the College. Solutions can be mailed to MSC 110 via campus mail or placed in Yung-Pin Chen's mailbox in the Math Department Office. Solutions to the above *Problem of the Week* should be received by 5:00 p.m. Monday, March 05, 2018.
- Mack Beveridge (sr.), Arthur Drobot (fr.), Christopher Karagiannis (so.), and Sam Raphael solved *Problem of the Week #5*. Congratulations to them.