

Problem 9: Fibonacci Time

USMA D/Math Problem of the Week

Submission Deadline: 13 November, 2008 at 1600

Circle one:	cadet	faculty	other
--------------------	-------	---------	-------

Problem Statement:

The sequence

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, ...

is known as the Fibonacci sequence and is defined recursively where $f_0 = 1$, $f_1 = 1$ and $f_n = f_{n-1} + f_{n-2}$ for $n \geq 2$. In other words, the next number of the sequence is the sum of the previous two. When looking at times, we can define a Fibonacci time as a time where the digits are consecutive Fibonacci numbers. One such time would be 1123, since the first four Fibonacci numbers are 1, 1, 2, 3. 1321 would be another Fibonacci time. How many Fibonacci times are there?