**Menu of Problems #13**

Find the sum of the series .

Provide your answer in fractional form.

Explanation

Well, first I figured out what power of 2 the denominator of . I did this by seeing how many times I would have to double 2 to get to 2048. 211 is 2048, so I knew that there were 11 numbers total in the sequence. Those numbers are: . Then, I had to make equivalent fractions with a denominator of 2048. Those equivalent fractions are: . Then, to find the sum, I added all the numerators together: 1024 + 512 + 256 + 128 + 64 + 32 + 16 + 8 + 4 + 2 + 1 = 2047. That means that the answer to the question what is the sum of the previously stated series of fractions is

This picture shows this problem, because each fraction in this sequence is half of the last one.