



The Global Math Circle

A testimonial from a math circle leader, Campo Elias Suarez, about his circle titled Number Theory with Python:

After our math circle team figured out how to convert whole numbers into binary, somebody asked about fractions. I was not prepared for that. Actually, my idea was to continue working in binary arithmetic with whole numbers. After some trials, the kids started to give more and more sophisticated answers, trying to extend the algorithm for whole numbers to any number. The kids were involved with programming, especially with python, so they developed an algorithm approximating 0.3 by the consecutive sum of negative powers of 2.

"We need an infinite number of summands", one of them said, "with only finite summands, we can be close but we will always be a little off from 0.3. I can find an approximation as close as I want, but it will never be exact."

Technology helps us a lot, but technology itself doesn't give us the answer to our original questions. The kids analyzed the information, created

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generating prime numbers.ipynb
We are going to generate all the prime numbers between 1 and n
The user will determine the number n.
[45] import numpy as np
[24] n = int(input("Please enter the number you want: "))
Please enter the number you want: 20
n = int(input("First number: "))
a = int(input("Second number: "))
print("The sum is:", sum)
First number: 10
Second number: 12
The sum is: 22
[36] list1 = [i for i in range(n)]
list1
```

philosophical questions about the structure of the numbers, and finally found how sometimes infinite sequences are needed to represent a number, how we can approximate very closely but still have a slightly different number, and only when all the terms are considered, the exact value is reached.