



MUSTANG MATH TOURNAMENT 2020

GALLOP ROUND 6

16. Find the sum of all prime numbers that can be expressed in the form $n^3 - 1$, where n is a positive integer.

17. Find the sum of all real values of x such that

$$1 + x + x^2 + \cdots + x^{2020} = 2021\sqrt{x}^{2020}.$$

18. If $a(n) = (-1)^{\frac{n(n+1)}{2}}$ for all integers n , evaluate the following sum:

$$1 \cdot a(1) + 2 \cdot a(2) + 3 \cdot a(3) + \cdots + 2019 \cdot a(2019) + 2020 \cdot a(2020)$$