



Problem of the Week #8

12/5/2022 to 12/18/2022

For positive integers n , let the numbers $c(n)$ be determined by the rules $c(1) = 1$, $c(2n) = c(n)$, and $c(2n + 1) = (-1)^n c(n)$. Find the value of

$$\sum_{n=1}^{2022} c(n)c(n+2).$$

Solutions for this problem can be submitted to Dr. Brian Miceli at bmiceli@trinity.edu. People who submit solutions will be acknowledged on the next problem. If you like these problems, you may be interested in the Putnam Exam, and more information on the Putnam Exam may be found [HERE](#).

Solutions to the previous problem were submitted by Ziad Aramouni (Lebanon), Tanay Arora (Beaverton, OR), Matthew A. Brom (Albany, NY), M.V. Channakeshava (India), Ritwik Chaudhuri (India), Ruben Victor Cohen (Argentina), Quentin Finn (alum), Rob Hill (Gambrills, MD), Hari Kishan (India), Tengiz Kutchava (Georgia, the country), Tin Lam (St. Louis, MO), Yann Michel (Paris, France), François Seguin (Amiens, France), Hicham Selmouni (Paris, France), Michael Tomaine (Bellevue, WA), and Zurab Zakaradze (Georgia, the country).