Problem of the Week

Problem 5 (due Monday, April 13)

Prove that $$\sum_{k=0}^{n}{3n\choose 3k }=\frac{2}{3}\left(2^{3n-1}+(-1)^n\right).$$

Overview

Every other Monday (starting 01/26/26), we will post a problem to engage our mathematical community in the problem solving activity and to enjoy mathematics outside of the classroom. Students (both undergraduate and graduate) are particularly encouraged to participate as there is no better way to practice math than working on challenging problems. If you have a solution and want to be a part of it, e-mail your solution to Marcin Mazur (mazur@math.binghamton.edu) by the due date. We will post our solutions as well as novel solutions from the participants and record the names of those who've got the most number of solutions throughout each semester.

When you submit your solutions, please provide a detailed reasoning rather than just an answer. Also, please include some short info about yourself for our records.

Previous Problems and Solutions

- Problem 4 No solutions were submitted.
- Problem 3 No solutions were submitted.
- Problem 2 Solved by Prof. Emmett Wyman.
- Problem 1 No solutions were submitted.
- Fall 2025
- Spring 2025
- Fall 2024
- Spring 2024
- Fall 2023
- Spring 2023
- Fall 2022
- Spring 2022
- Fall 2021
- Spring 2021

- Fall 2020
- Summer Challenge
- Spring 2020