

Name: _____

Email: _____

Math Club: Biweekly Contest Week Five

Release Date: April 17, 2024

Instructions: Solve the following problem as best you can. The first student to submit the correct solution via email to tamumathcontest@gmail.com or to Jeremy Kubiak in Blocker 336D (with time stamp) wins!

Problem 1. Show that

$$\sum_{n=3}^{2024} \binom{\binom{n}{2}}{2} \quad \text{where} \quad \binom{n}{k} = \frac{n!}{k!(n-k)!}$$

is divisible by 2022, 2023, and 2026 but not 2024 or 2025.