



Problem of the Week

Problem E

Just Sum Numbers

Kaori writes a sequence with the property that after the first two terms in the sequence, each term is equal to one more than the term before it, minus the term before that. In other words, $t_n = 1 + t_{n-1} - t_{n-2}$, for $n \geq 3$, where t_n denotes the n^{th} term in the sequence.

The first term in Kaori's sequence is x and the second term is y , where x and y are real numbers. That is, $t_1 = x$ and $t_2 = y$. Determine the sum of the first 2021 terms in her sequence, as an expression in terms of x and y .

$$t_1 + t_2 + t_3 + t_4 + t_5 + \dots$$

