

PCMI 2023 XML: MEETING 2

ALBERT ARTILES

PROBLEMS

1. Consider the function $f(x) = \frac{x}{1-x-x^2}$. Compute its 6th Taylor polynomial. What did you notice?
2. Suppose you have a $2 \times n$ grid and some dominoes. In how many ways can you cover the grid with your dominoes? What did you notice?
3. Consider the matrix $F = \begin{bmatrix} 0 & 1 \\ 1 & 1 \end{bmatrix}$. For $n = 0, 1, 2, 3, \dots, 10$, compute $F^n \begin{bmatrix} 0 & 1 \end{bmatrix}^T$. What did you notice?