

Applied Combinatorics Quiz 3

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True-False:

- F 1. The number of partitions of an integer n into even parts is equal to the number of partitions of n into parts, all of which have the same size.
- F 2. Generating functions of the form $f(x) = \sum_{n=0}^{\infty} a_n x^n$ are only applied in combinatorics when they are a Taylor series.
- F 3. $f(x) = \sum_{n=0}^{\infty} a_n x^n$ is the form of exponential generating functions.
- F 4. When $p(A)$ is a polynomial in the advancement operator A and the degree of this polynomial is $d = 5^2 \cdot 7^4$, the solution space to the equation $p(A)f(n)$ is a vector space whose dimension is $d(1 - \frac{1}{5})(1 - \frac{1}{7})$.
- F 5. $(A - 5)f(n) = 8 \cdot 5^n$ has solution $f(n) = c \cdot 5^n$ where c is constant.